
IN AUSTRALIAN WILDS



CHARLES BARRETT, C.M.Z.S.

#952

70

Howard Cobb Jr.

with love from

Sunt Melva.

just a little glimpse of Australian
"bush" life.

bush

IN
AUSTRALIAN
WILDS



"WALDEN HUT."

IN AUSTRALIAN WILDS

THE GLEANINGS OF A
NATURALIST

BY
CHARLES BARRETT, C.M.Z.S.

AUTHOR OF

"FROM RANGE TO SEA" "THE WIDE HORIZON"
"THE ISLE OF PALMS"

WITH ILLUSTRATIONS FROM PHOTOGRAPHS
BY THE AUTHOR

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TO
MY WIFE

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ERRATUM.

On page 40, second line from bottom,
read "glass" for "grass."

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INTRODUCTION

I FIRST met the author of this book as one of a band of young enthusiasts calling themselves "The Woodlanders," living their week-ends and holidays in a bark hut at Olinda, and hunting wild things very keenly and successfully with a camera; quite content to live close to Nature and to study it without collecting it. Most boys begin an intimate friendship with Nature as collectors, but if the author of this book ever had that failing it was before I met him, and that is so very long ago that there is no need to embarrass either of us over so small a matter of dates. In the social intercourse of the human race the character reader is often of more consequence than the anatomist—though each may follow his bent without necessarily belittling the researches of the other. Mr. Barrett's standpoint to Nature has ever been a friendly, even a loving one, full of quiet but deep sentiment, which in his younger days he would have been slow to acknowledge, because we all like to belittle our own emotions. It is one of the very widest of our unconvincing fictions. His soft side for Nature was backed by courage and conviction, and where the protection of wild things was concerned no one amongst all the naturalists I have known was so quick to recognize his duty in suppressing and preventing wrong, and to do it without any regard at all for personal consequences or convenience, recalling in this something of the Kipling line, "Oh, beware my country, when my country grows polite." His sense of duty, while finding very quiet expression, was conspicuously strong—it was that same sense of duty which induced him, when he had already given hostages to fortune, to put aside all thoughts of personal comfort and preferment and throw in his lot with "the army that never was broken."

Mr. Barrett has in late years seen and studied strange phases of Nature in other lands—in Egypt, in Sinai, in Palestine—where one may still check his impressions by reference to the first book of Nature. And at the end of it he has come back, not to tell us of war, either in its romance or its realities, but to drop quietly into the old haunts and seclusions and give us in his first published words just the old hobby and the old home things. The one thing which all his old friends and admirers would have wished is that everyone who takes up this book could know the author of it as we do. It would have added much to their enjoyment and understanding of his work. He is a tireless, even a daring hunter, without the hunter's limitations in daring most only for the things that are good to kill and to eat.

The author, though he has what the scientist is pleased to call "attainments," is in no sense a cabinet naturalist. His book is popular, which means that it is human. The actual anatomy of bird or beast appeals to him less than its habits, its activities, and, above all, its living rights, in Nature's wonderful scheme of things. The name of a thing—the point where "scientific" knowledge so often begins and ends—is of less importance to him than the thing itself. It is a book to read and keep for company's sake, in the same sense that a picture is so often aptly described as "good to live with."

DONALD MACDONALD.

CHAPTER I.

THE BUSH HUT

THE wattles on Olinda have blossomed many times since the spring of our advent. Three roving naturalists, familiar with the Bush, we had often slept on a bed of bracken, with stars winking at us between gum tree boughs, and wakened at sunrise to hear birds singing and see dew shining on the grass. It is pleasant, now and then, to become a super-sunder, to go on the wallaby with swag and billy, careless whither a track leads, and take one's ease at the Inn of Stars. We were Bush ramblers always in holiday time, but we fell in love with Olinda Vale at first sight, and knew that it would long stay our wanderings: a valley abrim with sunshine, and loud with the songs of birds.

In those days the settlement, little more than thirty miles from Melbourne, was small, perhaps a score of homes in all; we never made a census of the inhabitants. A gray old road came down hill from the station, turning sharply into the valley below the reservoir; an old road bordered with gum trees, and furrowed by cart wheels, dusty in summer and muddy in winter; a road that led past huts and cottages, and over the creek into undiscovered country. Between the road and the creek lay a broad strip of fertile land on which the villagers lived and toiled. There were bean and potato fields, small orchards, raspberry patches and beds of strawberries. One or two men were beekeepers; some felled trees for a livelihood. But there was never a shop in the Vale, no "business centre," no crowd on "late closing" night; Olinda was then in the Golden Age.

We soon made friends among the settlers, and became tenants of a hut near the southern entrance to the Valley. The owners, two brothers, had prospered and built for themselves a neat cottage of weather-board—a stately mansion compared with the hut—and were glad to give us a lease of the old home with its three acres of ground.



AUSTRALIAN MAGPIE.

Settling down was not accomplished in a day. For the hut, though stoutly built of logs, with a bark roof, needed some repairs, while the interior had to be cleaned and fitted with bunks and other comforts. One end of the building was occupied by an open fireplace, with wire hooks and chains dangling from an iron bar. A slight partition, with a low doorway, justified us in describing the hut as a two-roomed dwelling. Some of the floor slabs were loose, there were gaps between the wall logs, and the sky glazed holes in the roof. But we worked hard, and at length our Bush home was

fit for any man unwedded to luxury. Our first care had been to make the hut weatherproof; then we dealt with the interior. The rough logs were screened with hessian, which, in turn, was covered with wallpaper of a bright tint. Several bunks—sacking stretched over wooden frames—were built along the walls; a cupboard was fitted in a corner, and the mantelshelf, a deal board, securely nailed above the fireplace. A few photographs and pictures tacked against the walls, a swinging lamp, pots, pans and crockery in their appointed places, and the hut began to look home-like.

It was late on a Saturday night when our task was finished, and we rested, well pleased with the result. A log fire chased shadows from corners, gleamed redly on every polished surface, and shone on three contented faces. Outside the wind moaned around the hut, a loose piece of bark flapped like a wounded bird, and once a Fox barked. It was pleasant to sit by the fire and listen to those sounds of unrest fretting the night. When the billy boiled we charged tin pannikins with tea, and honoured the toast of "Walden Hut." This name, of course, was borrowed from Thoreau. We had read his books with keen interest, and from the most famous of the series gained the idea of living for awhile in a Bush hut.

Year after year we spent holidays, and any other days that could be stolen from business, at Olinda Vale. But the joy of living there continuously from January to December was denied us. Thoreau, however, was not the compleat Hermit, for he received visitors and sometimes went to Concord. We did likewise, only our Concord was the town of Lilydale, some three miles from Olinda Vale. Many times we made the journey by moonlight, laden with parcels, but cheery as crickets on the hearth. We were young then, young and in tune with the spirit of the wild; our "thoughts were skimming swallows."

Sunshine, flowers and bird song were all sweet things; and night, with her stars, was desirable, too. None of us has pleasanter memories than those which were gathered in Olinda Vale. Like Thoreau, we plucked life's finer fruits, and reckoned up accounts on a thumb nail. I shall not weary you with details of



SCARLET-BREASTED ROBIN ON NEST IN WOODPILE.

economy, or records of the daily round at "Walden Hut"; Nature is the theme. Every day was passed in health and happiness. We lived frugally and spent little. Meals consisted of bread, meat, occasionally fish from the stream, fruit, wild honey and eggs, with milk, tea and cool creek water. Luxuries were not desired. On our sack bunks we slept soundly, after a day in the open air. Doubtless, this mode of life would suit few city-bred folk; but we found it delight-

ful. There was no sense of "roughing it" in our old Bush hut.

Garden and orchard needed some care, and wood-splitting and spade work provided exercise, apart from Bush rambles. The morning plunge in the swimming hole, embowered in wattles and ferns, was refreshing after slumber. Our garden was stocked with old-fashioned plants: wallflowers, pansies, violets and phlox. A rose bush grew at one end of the hut, and ivy climbed about the other. Just beyond the threshold long grass formed a jungle; then came the orchard, with a narrow pathway leading to the creek. "Walden Hut" fronted the road, but we promoted the back door, because it opened on wildness and beauty. So little was the other portal used that, in time, ivy sprays crept across it, and spiders spun webs in the corners. Indeed, the hut was a harbour for wild things. Blue Wrens nested in the ivy, Swallows under the bark eaves, and beneath the floor lurked snakes and lizards; mice pattered between the logs and hessian, and moths rested in crannies. Besides these boarders, we received visitors from the Bush. Scarlet-breasted Robins [*Petroica leggii*] came to the garden, and a pair nested in the woodpile. In the night, Opossums [*Phalangers*] played about on the roof; at dawn we were wakened by bird notes. Sometimes a Great Brown Kingfisher [*Dacelo gigas*] would chuckle and gurgle from the ridge pole; Magpies [*Gymnorhina leuconota*] rarely failed to carol, and small birds greeted sunrise with a medley of sweet sounds. A village girl, rising early, sang as she went through dewy grass to the milking shed. It was good to lie abed and hear all these morning sounds, while sunbeams slanted through the window on to one's face; pleasant, also, to win glimpses of sky through the open doorway.

After an early breakfast, on fine days, we would set out with camera and field glasses, to ramble in

the Bush near home, walk to the falls, or climb the neighbouring hills. Or we would take the old road over the bridge and explore wilder Bushland to the foot of a mountain. On these excursions we became



WHITE-SHAFTED FANTAIL ON NEST.

acquainted with the fauna and flora of the whole district, and reaped a harvest of sun pictures.

Down by the creek many birds nested in spring and summer. A friendly sprite was the White-shafted Fantail [*Rhipidura albiscapa*], whose song resembles soft notes of a violin. An accomplished

acrobat, this little gray bird tumbles and darts through the air in pursuit of insects. The nest of the White-shafted Fantail is a dainty structure of fine, dry grass stems. The lining is of softer material, sometimes mingled with horsehair. Shaped like a wine-glass, with the "foot" lacking, the nest is covered externally with spiders' web, which gives it a "finished" appearance. The Fantail broods closely, and it is not difficult to photograph her on the nest, which is usually fastened to a slender horizontal branch, at no great height. At Olinda we found scores of nests of this species, some among the hill gum trees, others in the wattles. Many were saddled on boughs overhanging the creek. When one of us angled for trout or blackfish, Fantails were in constant attendance. Often a bird would alight on the rod, spread its tail, and sing, as if to encourage the angler.

Another familiar bird was the Yellow-breasted Shrike-Robin [*Eopsaltria australis*], which was even more confiding than the Fantails. "Yellow-bob" and "Wild Canary" are its Bush names. On the upper part of the body the plumage is dark gray, the throat grayish-white, underparts bright primrose yellow, and base of tail olive-yellow. The movements of this beautiful bird are soft and silent; one may be close at hand and escape notice. The Yellow-breasted Shrike-Robin has a habit of flying from the ground to a tree trunk and clinging to it sideways; it may remain in this position for some minutes. Like the Fantail, this Bush bird is reluctant to leave its nest, whether the contents be eggs or nestlings. More than once I have stroked the head of a Shrike-Robin while it sat on the nest, and pushed the bird gently aside to see her eggs. The nest is cup-shaped, composed of bits of bark and fine twigs, and lined with rootlets and dead leaves. Externally it is draped with greenish-coloured lichens and long strips of bark, so that it harmonises with

immediate surroundings. Nests may be placed close to the ground, in the fork of a bough, or in a similar position at some height. Typical eggs of the Yellow-breasted Shrike-Robin are of a delicate apple-green colour, splashed and spotted with chestnut and blue-gray. A clutch in which the colour was blue, without any markings, has been described. The coloration of birds' eggs is a fascinating study.



MISTLETOE-BIRD AT NEST.

Mistletoe-Birds [*Dicaeum hirundinaceum*] were not rare; but the discovery of a nest was an event for rejoicing. Often we watched the brilliant little birds (whose nearest relations flourish in the Indian region) gleaning among big clumps of *Loranthus* on gum tree boughs, and searched diligently for their pendulous nurseries, generally in vain. Early in October one year fortune favoured us. A nest was found suspended in a gum sapling growing on a hill slope. It was the

prettiest and neatest bird home we had seen: roughly pear-shaped, made of a felt-like mixture of gray-coloured, downy plant substance, spiders' cocoons, etc., and with a narrow side entrance, which enlarged as the two nestlings grew to bird's estate. It was about three inches in length, the width being slightly less, and swung from a slender branch ten feet from the ground. We fixed the camera on the apex of a pyramid made of old fence rails, focussed on the nest, and went to cover behind a large bush, thirty feet away. Nearly half an hour passed before the parent birds ventured to approach. The mother came first. She flew on to a branch, just above the nest, gazed at the camera, and showed signs of indecision. But love conquered fear, and soon the Flower Pecker left her perch and clung to the side of her home. She thrust her head inside, and began cleansing operation. The slight noise when the camera shutter was released sent her off to a tree close by; within ten minutes she returned, this time with a beak full of food. In the course of an hour she made many trips to and from the nursery; and we exposed a dozen plates. Once only the male bird alighted in the sapling; he declined to come within range of the lens. A week later we visited the spot again, to find the fledglings out in the world. One was captured, and the mother flew on to the hand in which it was held.

We established friendly relations with the Diamond Birds. Birds of the tree tops, small and exquisitely coloured, their delicate clinking notes were heard more often than the Pardalotes were seen. One species, the Red-tipped Pardalote [*Pardalotus striatus*], nested in hollows in dead branches, or reared its broods underground. The nest of the Spotted Pardalote [*Pardalotus punctatus*], placed in a little domed chamber at the end of a tunnel about a foot in length, is cup-shaped, and composed of fine shreds of bark or dry grass stems. From four to

five eggs, pearly-white, and about the size of a small marble, form the clutch.

Honey-eating birds were plentiful among the thickets of Hazel, Acacia and Musk trees along the creek. A striking form was the Yellow-faced



RED - TIPPED PARDALOTE

Honey-eater [*Ptilotis chrysops*], found in South Australia, Queensland and New South Wales, as well as Victoria. Nests of this species, composed of pieces of golden-green moss, with spiders' web and bits of bark interwoven, were suspended from slender twigs, generally over the water, and the eggs, salmon-coloured and flecked with reddish and purple-gray, looked like jewels in a casket. New Holland Honey-eaters [*Meliornis novæ-hollandiæ*] were fairly numerous, and we found many of their nests, built low

down, in the tangle of bracken, wire-grass and creepers near the waterside. The birds betrayed their nests by scolding any intruder. It was the same with some other species. Often, the nest of a pair of



WHITE-BROWED SCRUB-WREN IN NEST.

White-browed Scrub-Wrens [*Sericornis frontalis*] was discovered through the fussy concern of its owners. Blue Wren-Warblers [*Malurus cyaneus*] were equally foolish, and Brown Tit-Warblers or Thornbills [*Acanthiza pusilla*] led us to dome-shaped nests in the bracken, not once, but fifty times.



NEST OF STRIATED TIT - WARBLER.

Nests of the Striated Tit-Warbler [*A. lineata*] were not so easily discovered as those of the little brown bird, its cousin. They were usually suspended from slender twigs, and half hidden among leaves. One that we found was a model, and when the brood had flown we took it to the hut as an ornament for the "mantel-piece." Oval-shape, and about five inches in length, it was neatly and strongly made of thin shreds of red-brown bark; the domed side entrance had a slight ledge—threshold and window-sill combined. The interior, cosily lined with soft material, held three pearly white eggs, spotted with chestnut-brown, so thickly about the apex as to form a zone.

All day in spring the Vale was full of bird voices, and we learned to distinguish the calls and songs of over sixty species. Most insistent were the Cuckoos, which called over and over and over again, as if they never could tire of hearing their own voices. Four species were abundant at Olinda, and small birds suffered from their presence. Blue Wren-Warblers and Tit-Warblers were usually chosen as foster-parents for their offspring by Bronze Cuckoos [*Chalcococcyx plagosus*] and Narrow-billed Bronze Cuckoos [*C. basalis*]; the Fan-tailed Cuckoos [*Cacomantis flabelliformis*] selected Scrub-Wrens' nests for their eggs; while the Pallid Cuckoo [*Cuculus pallidus*] showed a preference for those of Yellow-breasted Shrike-Robins and Honey-eaters. We were fortunate to witness a Bronze Cuckoo chick, blind and featherless, eject from the nest two Blue Wren-Warblers, which were, perhaps, a few hours younger. It was an interesting but unpleasant sight, this tragedy of Birdland.

What impels Cuckoo nestlings to clear the nest of the foster-parents' eggs, or chicks, as the case may be? My own conclusions, the fruit of both observation and reflection, are given in a paper entitled "The Origin and Development of Parasitical Habits in the Culculidæ":*

*"The Emu," Vol. VI., Part 2, pp. 55-60.

"With reference to a suggestion that the action of the infant Cuckoo in ejecting its nest fellows is purely automatic, rythmic, and governed by external stimuli or reflex action, I still cling to the belief that the process is referable to hereditary instinct, or subconscious memory, aided by dawning reason. . . . The actions of the blind, featherless infant Cuckoo on this occasion (at Olinda Creek, in 1904) certainly showed no sign of being due to reflex action, but, on the contrary, appeared to me a marvellous, and almost uncanny, exhibition of instinct and subconscious reasoning."

Cuckoos have interested naturalists from the time of Ælian, who flourished in the second century. He observed their parasitical habits. It is certain that much remains to be learned regarding these strange birds. Authorities differ on several points. Some declare that Cuckoos actually lay in nests, others that each egg is laid on the ground, and borne to a nest in the bird's beak. Possibly Cuckoos which choose open nests deposit their eggs directly therein, while species which favour dome-shaped nests adopt the other method. A reliable Australian observer records having seen a Pallid Cuckoo sitting on a Robin's nest. With regard to resemblance between the Cuckoo's eggs and those of the foster-parent, there are some notable instances among Australian species. The Fan-tailed Cuckoo's favourite foster-parent is the White-browed Scrub-Wren [*Sericornis frontalis*], and the eggs of the two species are much alike, both in size and coloration. The Pallid Cuckoo frequently chooses nests of Honey-eaters, which lay eggs closely resembling its own. There are other cases which do not fit in with the theory of mimicry, if that term is permissible here.

We devoted much time to Cuckoos, but they did not interest us more than the elusive Coachwhip-Bird [*Psophodes crepitans*], which was more often heard than seen. These shy creatures frequented the "jungle" along the creek and dense scrub in marshy

places, where the light was dim. Several nests were discovered. Saucer-shaped, and composed of wire-like rootlets and small twigs, they were placed in tangled clumps of wire-grass, from three to six feet



NEST AND EGGS OF COACHWHIP-BIRD.

above the ground. The eggs (two form a full clutch), sky-blue ground colour, with quaint scrawls and other markings in sepia and gray, were lovely objects. Desiring to obtain photographs of the birds themselves, we marked down a nest which held two eggs, and waited patiently for the time of nativity. At length the eggs hatched, and a few days later the camera, screened in boughs, was set up near the nest. The

photographer, early one morning, focussed on the nest, made other necessary preparations, and went into hiding. One hand held a bulb at the end of fifteen feet of rubber tubing, connected with the camera shutter.



COACHWHIP - BIRD AT NEST.

Hour after hour he remained in a cramped position, gasping in the humid atmosphere and tortured by mosquitoes. The female Coachwhip-Bird soon returned with food for her young, but she was suspicious, and for long refused to come within range of the lens. She feared the "eye," which stared from the centre of an unnatural bush. But the chicks were hungry and clamoured for food. At the end of the

third hour the timorous bird flew on to the nest and stayed for a moment, alert. The shutter clicked, and she darted off; too late, however, to foil the patient watcher. When the plate was developed, it showed the mother bird, and a chick leaping from the nest to greet her. This was the first photograph of the Coachwhip-Bird obtained, and caused much interest among Victorian ornithologists. Subsequently other Nature photographers were successful.

Among the gum trees on the hill slopes Parrots, Butcher Birds, Magpies and other species nested. From a nest of *Cracticus destructor* we took three fledglings, which became pets. They were merry little creatures, but called almost incessantly for food. Small pieces of raw meat, moistened in water, were given to them. One bird learned to whistle the opening bars of some simple tunes, but its own wild, sweet notes were most pleasing. The Magpies' rich carolling was always welcome, but seemed especially musical after the screeching of a flock of Parrots or Cockatoos. The Rosella Parrot [*Platycercus eximius*] is a bird of gay plumage, as everyone knows, but it is not a "songless bright bird." It sings after a fashion of its own, uttering, as it creeps among the foliage of a gum tree, nicely modulated notes. The "song" is in harmony with the whispering of leaves, and humming of insects in the flowers:

All the live murmur of a Summer day.

Black Cockatoos [*Caloptorhynchus funereus*] did not nest at Olinda Vale in our time, and are never likely to do so. Sometimes a small flock came flying over a hill, to sweep, with harsh cries, through the sunlit valley. "When black cockies fly low look out for rain," is a Bush saying that was not verified. The birds which visited us did not know their business as rain prophets, or else they were on holiday, for rain was never the sequel to a low flight by Black Cockatoos.

A hollow in the trunk of a dead gum tree near the hut was used each season by a pair of Great Brown Kingfishers. The nest was inaccessible to our boldest climber. Not that we wished to rob it, but it would have been interesting to peer at the nestlings. When fledged the young Laughing Jacks were pretty



GREAT BROWN KINGFISHER.

and desirable, but some chicks seen elsewhere proved less attractive. The owners of our home nest were friendly enough. When we worked in the garden one or other of the birds would be in attendance, ready to dart almost beneath spade or hoe, to snap up a worm or fat white grub. All the Bush people had a good word for Kookaburra. "They are rare good 'uns," a man remarked, "kill snakes and such like vermin." We were not fortunate enough to see a snake killed by

a Kookaburra, but obtained convincing evidence of the bird's good offices in this direction.

Reptiles were not particularly abundant in the Valley, but many were seen, and some killed, in the course of several years. That the hut, at times, harboured snakes was proved by the despairing squeaks of captured mice, heard in the stillness of night.



KOOKABURRA NESTLING.

Sunny spots on the hillside were likely places for snakes, and it was well to go warily through long grass. A swamp some miles from Olinda Vale was infested by venomous snakes (it may be so still), but it was far out of our beat, and did not cause the least concern. We found that snakes, as a rule, are anxious to avoid an encounter with man.

The order *Lacertilia* was represented by several species, notably the Blue-tongued Lizard [*Tiliqua*

nigrolutea], a slow-moving reptile. A specimen which was kept in captivity for a few days declined to become friendly. When it was touched it opened wide its mouth, displaying the bright blue tongue, and made a peculiar sound, between hissing and gasping, evidently with the object of inspiring terror. In other localities, nearer Melbourne, I have found these



BLUE-TONGUED LIZARD.

lizards in numbers. If a piece of sacking, an old kerosene tin, or heap of brushwood on the moorland be turned over, a "Blue Tongue" may be revealed. Small brown lizards, swift on their legs as a dragon-fly is on the wing, were common objects in warm weather. And occasionally, on tree trunks, we saw Geckoes, with "splay" feet and big eyes. Frogs were met with in marshy places. Often, at night, they serenaded us for hours—an insistent shrilling

noise, pleasant for a time, afterwards monotonous and hard to tolerate.

Nominally, we took all Nature for our province, but birds received the largest share of attention. We did not neglect insect life, though, in those days, Henri Fabre's wonderful books were unknown to us; nor had we read "The Life of the Bee." In butterfly time many gay insects danced in the sunlight, floated over the bracken and sword-grass, and dallied with flowers in the Bush and our garden. Most abundant was the Common Brown [*Heteronympha merope*], which revelled in sunshine, and rested in shade. At the end of November hundreds of these insects were on the wing; it seemed as if Titania had sent into the Valley an army of golden-mailed warriors to conquer. The Large Wood Brown [*Epinephile abeona*], with primaries of smoky-brown, blotched with orange, and each bearing two purple spots, black margin and white centre, was rather rare, but some were seen floating about sword-grass (caterpillars' food plant), close to the ground. Several other "Browns" were fairly numerous, also the Australian Admiral [*Pyrameis itea*], a lovely insect. Chrysalids of the Admiral were equally beautiful, some being violet-gray, flecked with black, others of a golden hue. Tiny "Blues" flitted over the grass, like animated bits of the Summer sky. We were never lucky enough to see the Moonlight Blue [*Miletus delicia*], perhaps the rarest and most beautiful of Victorian butterflies.

Dragon-flies, with delicate gauzy wings and brilliantly coloured bodies, threaded the air; beetles climbed over grass stems, hid under loose bark on gum trees, or circled on the surface of the creek. On hot summer days the shrilling of cicadas was intolerable. Millions of these goggle-eyed insects inhabited the Eucalypts, whose boles and branches were studded with pupal shells. On gum leaves were seen the



RING - TAIL OPOSSUM'S NEST.

curious stinging caterpillars of a Cup Moth [*Limacodes longerans*]; the cup-shaped cocoons were fixed in crevices of the bark. We noted handsome "Jewel" Beetles [*Buprestidæ*], showing metallic tints, resplendent "Diamond" Beetles, and many fine Longicorns.

Among thickets of Native Hazel and Swamp Tea-tree by the creek Ring-tailed Phalangers [*Pseudochirus peregrinus*] were at home. Their nests, in shape



YOUNG RING-TAIL OPOSSUM

like a rounded football, but larger, were easily reached, but we did not harm the occupants. In fact, it was rarely possible to catch an Opossum in the nest. The vibration made in climbing warned the little pink-nosed marsupial of danger, and gave it a good chance to escape. Boys hunt Opossums with dogs. They shake the poor animals from branches to the ground, where the dogs are waiting to kill.

On moonlight nights we sat outside to witness the play of Flying-Phalangers [*Petauroides volans*].

A tall dead gum tree, with horizontal bough stretching towards the creek, and forty feet above the ground, was a favourite resort of the furred acrobats. One would suddenly appear on the gaunt, gray limb, creep to the end, gather itself together and leap lightly into space. Dark in the moonlight, the animal's body seemed to float for a moment, then glide swiftly down



TIT - WARBLER FEEDING FLEDGLING.

to a tree some distance away. One after another would perform this feat—an Austral night's entertainment. We rarely saw a Flying-Phalanger in daylight. A smaller species [*Acrobates pygmaeus*], known to Bush folk as the "Sugar Squirrel," was observed occasionally. One was captured, and made a charming pet.

Day by day we discovered something new, bird, flower, or insect. The riches of the Valley seemed to be inexhaustible. That was before the district became popular and received a new name. When we retired

from the scene there were already signs of change. The tide of rural peace began to ebb long ago. Now there are cottages among the gum trees on the hills; the creek flows under a new bridge, larger but less picturesque than the old log structure; "Walden Hut" is overgrown by ivy, and the windows are dim with dust and cobweb. The old place is forlorn. It may be fancy that the creek has forgotten its song and the birds their sweetest notes; but clearings on the hill slopes, chimneys among the gums, and the new road from the station, are real.

CHAPTER II.

GIPPSLAND WILDS

ONE must camp by creeks and rivers, and roam through the tall gums, to realise the beauty of Gippsland wilds. Despite all the settlement, large areas of country remain in virgin state. If the aborigines, the lost tribes, could come again to their old demesne, they would find less game, perchance, but ancient forests and running waters would welcome them, unchanged. I write, of course, only of the "wild" country. Where settlers "go on the land," clearing and cultivation begin, and the wild vanishes before progress like mist before the sun.

Naturalists regret that more, and larger, areas have not been reserved as sanctuaries for the native fauna and flora. But regret is vain; we must be content with what has been saved from settlement. There are State forests, many small sanctuaries, and, best of all, the National Park, which is safe for all time.

Gippsland wilds! The very words revive pleasant memories of fern gullies, running water, sunlit glades and forests of tall trees. Were I to glean from a dozen notebooks, the *pot pourri* would be fragrant of wattle bloom, gum leaves, sassafras and musk. I will describe a few excursions, which are typical of many.

* * * * *

At the end of August, one year, with a fellow-member of the Bird Observers' Club, I travelled from Melbourne to a station on the Gippsland railway. The main object of our journey was to see the Lyre-Bird [*Menura victoriæ*] in its native haunts. We were met by a local naturalist, who had offered to guide us

to a "bit of forest," and show us the bird inhabitants. Next morning we were astir early, and drove through pelting rain to the appointed place. At least, we drove part of the way; the roads were so bad that our vehicle was left behind, a mile from the "sanctuary." Walking was like wading through a swamp in summer; mud clung to our boots and squelched



FEMALE LYRE-BIRD.

above our ankles. Rain fell almost continuously; there were only two or three brief periods of sunshine, so that camera work was nearly fruitless. Still, the sights in the forest outweighed all discomforts, and sweetened photographic failure.

Through dripping brushwood, amid Tree-ferns and Eucalypts, we toiled to the heart of the forest. It was silent here, save for the pattering of rain drops on leaves high overhead, and the rare call of some sheltering bird. Silent for awhile. Then we heard a female Lyre-Bird call, and our friend led the way

to a fern bower. On the deep mould of unnumbered centuries our feet fell softly, without sound. The light was dim, and one felt that noise was foreign here, that the place was sacred to silence. This fancy soon passed away; for we were at the home of the Lyre-Bird, and eyes and ears became alert. The nest, a bulky structure, was built between the trunks of two lofty Tree-ferns, about ten feet from the ground. Green fronds, and several dead ones, were drooped around the "doorway." I clambered up, and put a hand into the nest. Immediately a shrill protest sounded. There was a downy chick inside, with a feeble body but powerful voice, and its penetrating alarm notes brought the mother bird on the scene. She leaped lightly to a bough of an adjacent tree, and ran up and down it, uttering notes that suggested both anger and solicitude. I returned to earth; the Lyre-Bird remained on the limb for a minute, and then flew to her nest. We retired a few yards, to watch. The bird appeared to be satisfied that her offspring was not in peril, and, leaving the nest, she foraged in the vicinity till we became tired of inaction.

"She is tame enough," remarked our leader, and he proved his words by approaching the bird and touching her with a short stick. But as soon as her nursery was approached she became restive. On the bough, evidently a favourite perch, she stood, watchful. The camera was used, but the light was not sufficiently strong to give good results with quick exposures. The photographer was only nine feet away, and his subject, save for little movements, was wonderfully obliging. It was lack of light alone that caused failure. We boiled the billy and lunched near the nest, and all the time the female Lyre-Bird was visible; sometimes, apparently unconcerned, she came so close that the firelight gleamed on her plumage.



Photo.]

YOUNG LYRE - BIRD.

[C. P. Kinane

Suddenly our guide lifted his hand for silence. His quick ears had caught the male bird's notes. Presently we, too, heard them, and hope surged high. It was justified. Out into the open, twenty feet from where we sat, strutted the bird, its splendid tail displayed. In full view, it stopped for a minute, as if suspicious, but continued its parade, and made a complete circle of the camping spot. Neither fire nor smoke alarmed it. After receiving a welcome from its mate, the male bird disappeared.

Later in the day we explored the scrub in other directions, not without success. Several old nests of Lyre-Birds were discovered, and also a dancing mound on a hill slope. While at its mound we heard, far away, the male bird calling. We advanced cautiously, and, screened by the dense undergrowth, were able to reach a hiding place fairly close to the bird. It proved to be a master minstrel. Besides its own varied notes, it had a wonderful repertoire, and favoured us with excellent renderings of songs and calls of over a dozen species of birds, imitated the barking of a cattle dog, followed by the whistle of its master, and became silent. But only for a minute. Though the audience had not dared to demand an encore, the whole programme was repeated. We were singularly fortunate, having both seen and heard the Lyre-Bird at its best.

It was in the Lyre-Birds' haunt that we found a playground of the Satin Bower-Bird [*Ptilonorhynchus holosericeus*], one of the most remarkable examples of bird architecture known to naturalists. The bower stood in the centre of a little glade, with ferns and shrubs forming a natural fence. Evidently the bower had been finished recently, for the collection of bright objects scattered around was small. There were a few bleached bones, some land shells, several blue feathers (Parrots'), bits of blue grass, and about a score of flowers, chiefly violets. To gather the



BOWER OF SATIN BOWER - BIRD.

blossoms, the Bower-Birds must have visited a settler's garden, two or three miles from the scrub. We caught glimpses of the birds, several females, and a male in the "full dress" of shining blue-black (it is believed that the adult plumage is not fully assumed until the bird is seven years of age). A nest was discovered some distance from the bower, in a Musk tree. But it was old and empty, and we concluded that it was too early yet for nidification. November is a good month to search for Satin Bower-Birds' nests.

Towards evening the return journey to the township was begun. A huge Tree-fern, dead and inclined over a tiny creek, detained us for awhile. It was festooned with leaf and tendril, and the delicate blossoms of *Tecoma australis*. Mosses had woven a green mantle for the brown trunk, and many little ferns clung to it: a botanical garden in miniature.

* * * * *

A week in Lakeland is not so pleasant now as it was in former years. The country has been opened up, and the lake townships are popular holiday resorts. On the Ninety Mile Beach, however, one may wander in solitude and listen undisturbed to the long wash of waves and the cries of Silver Gulls. After a storm there are shells to be gathered on the wild beach, and queer objects which the sea has jettisoned. On a lucky day the shell of a Pearly Nautilus will be found, stranded in a shallow or wrecked on the beach.

Most visitors to the Gippsland Lakes make the trip to Buchan Caves, a fairly long journey. As a rule, it is unprofitable for a naturalist to follow the tourists' trail; but in this instance it is worth while. A drive of five miles from Cunninghame brings one to the southern landing of Lake Tyers. The voyage through this loveliest of Victorian lakes to Nowa Nowa is enchanting. The shores, for miles, are

timbered to the water's edge. Tall reeds grow in quiet reaches, the haunts of Coot and Heron; Ducks cruise inshore, and Cormorants, perched on dead branches, look curiously at the motor launch as it glides past. This forest lake, where "Peace comes dropping slow," seems to be for the quiet passage of bark canoes, and boats that move to the "dreamy drip of oars."

The road from Nowa Nowa to Buchan, a distance of seventeen miles, traverses a forest, and is one of the finest coach drives in Victoria. But wild Nature does not please everybody. "It's a pity that all this country isn't under wheat," remarked a gaily dressed young woman to a fellow-passenger, as the Buchan coach was travelling through the forest. The party included a youth, evidently a city clerk, whose foolish talk entertained the girl who sighed for wheatfields. We were all anxious to see a "Native Bear" or Koala [*Phascolarctus cinereus*], which, the driver had told us, was domiciled in a gum tree along the road. When he pointed with the whip handle, all eyes were focussed on an innocent little creature, which returned the compliment with a look of mild surprise. The smart youth jumped out and flung a stone at the "Bear"; he was rewarded with a sharp rebuke from the driver, and resumed his seat, rather crestfallen. The Koala climbed to the top of its tree, and the coach rumbled forward.

Coming into Buchan is rather an exciting experience. The road slopes steeply from a windy rise, and nervous passengers are inclined to become limpets for the nonce. But Australian coach-drivers know their business, and there is little to fear, coming into Buchan.

The caves are both beautiful and interesting. Fairy Cave, the "tourists' darling," has been civilised. To a naturalist its most striking feature is a cluster of swallows' nests, against the wall in the entrance,

just where slanting sunbeams fall after noon. Moon Cave, at the time of my visit, was not ready for tourists, and, therefore, most desirable from my point of view. The guide led the way through dank galleries, rugged and dripping with moisture, to a lofty chamber. We stood on the margin of a subterranean stream, and small fishes [*Galaxias*] were seen in the clear, cold water, on which the torchlight gleamed. "A Platypus comes here sometimes," said the guide. But I peered in vain for a sight of *Ornithorhynchus anatinus*. Coming from its dark channel under the hills, the creek goes, singing, away through pleasant valleys to some mysterious haunt of birds. Its banks, here and there, are hidden by blackberry bushes. By the ford we lunched, eating ripe berries for dessert.

Close to the township, where the Buchan River flows past a farm, I disturbed a big lizard, which was searching for hen eggs. It dived into the water and swam swiftly down stream. Farmers' wives detest the "Goanna" [*Varanus varius*] because it is fond of eggs, and never misses a chance of pilfering from poultry yards.

* * * * *

Victoria's National Park is not greatly troubled by tourists, though small parties camp there during Easter and Christmas holidays. There are rest-houses and other facilities. Two rangers, who dwell in comfortable cottages, keep ward over the Park, which is sanctuary for all native animals except snakes and Dingoes.

Wilson's Promontory is linked to the mainland by an isthmus, composed chiefly of sand dunes, some fourteen miles in length and four miles across. Within the Park the nature of the country varies. Innumerable small streams flow from the granite hills. Along portion of the coast great dunes arise, and behind them lie swamps and morasses, formed by inland waters fighting their way to the sea. These lonely

places are the haunts of wildfowl. Peaks on the Promontory include Mount Latrobe (2,434 feet), Mount Wilson (2,350 feet), Mount Vereker (2,092 feet), and Mount Oberon (1,965 feet). Masses of granite, huge boulders sculptured curiously by wind and rain and decked with lichens, are conspicuous. There is much barren country. Also there are fern gullies, areas of heathy and grass land, Banksia groves and forests. One might wander over the Promontory for months without exhausting its interest.

In Corner Inlet there are extensive mud flats, and at low tide it is difficult for a boat to reach the landing place. Spurious Mangroves [*Avicennaria officinalis*] grow freely in this desolate region. There are thousands of dead and living plants, and the mud is studded with *pneumataphores*. These "breathing" organs convey oxygen to the roots in the mud. Vast numbers of crabs [*Helæcius cordiformis*] live among the Mangroves. When camped near the flats one night, my rest was disturbed by a loud noise, as of heavy rain drops striking leaves. But the sky was clear. Going down to the beach I saw, in the moonlight, millions of Mangrove crabs patrolling the mud flats; their movements had caused the strange sounds that put my dreams to flight. They are difficult to capture, these crabs; a step on the mud sends them scuttling to cover down their burrows. The mud flats are treacherous, and it is foolish to venture beyond the sandy beach without long pieces of flat board affixed to one's boots. With these "mud shoes," progress over the flats is comparatively safe and easy; lacking them, one is likely to sink deeply into the mud.

The Vereker Range was partly explored during an Easter excursion. The weather was abominable, heavy rain falling most of the time. Our horses, used to rough country and wild gallops after cattle among the hills, carried us bravely from the coast to

the interior. There were some stiff pinches, too, and sloping tracks agleam with water. At one stage the horses had literally to climb among rocks, and break a path through barriers of creepers and dead boughs. But we had a glorious gallop across the heathy upland,



LOADING THE PACK-HORSE.

nor cared to stop when wildflowers beckoned. A glimpse of cattle was obtained. They were feeding far above us, on a grassy flat, and looked no bigger than sheep. It must be exciting work mustering cattle in the ranges. Presently we won clear of the rougher country, and halted for lunch beside a creek. The horses, especially the poor pack animal, were glad to rest, like their riders. Late in the afternoon we

plunged into Lilly-Pilly Gully, on the eastern side of Mount Vereker. At the creek we had admired fine specimens of King Fern [*Todea barbara*]; now we camped in a bower of Tree-ferns [*Dicksonia antarctica* and *Alsophila australis*]. The place was dank,



IN LILLY-PILLY GULLY

and every leaf shed moisture. But it was so wild and beautiful that we made light of damp clothing and other discomforts. The horses fared rather badly. There was no feed for them save what they gleaned from boughs of the Blanket-wood tree, which were cut for their evening meal.

Night came without her train of stars, and rain fell steadily till our fern bower became a bathroom, roofed with sprinklers, whose unwelcome showers could in no way be stopped. A fire was started with

difficulty—dry wood was at a premium—and, drenched to the skin, we crouched around it like a band of Red Indians, each with a sack over head and shoulders. Hot tea and tobacco smoke cheered us a little, and we turned in for the night. But it was cold inside the



PARK RANGER AND EMU.

tent, a few yards from the fire, and we huddled together for warmth.

The morning scene was depressing. No ray of sunlight penetrated the canopy of fern fronds and Lilly-Pilly boughs, while the fire was a heap of wet ashes. After a hasty meal, we caught the horses and scrambled out of the Gully. A long ride through the rain, and we reached a cottage on the isthmus side of the boundary fence, where we camped in comfort for the night.

Next day the sky was clearer, and there were "puffs of sunshine." We journeyed to the ranger's home, on the Darby River, where two young Emus [*Dromaius Novæ-hollandæ*] were seen, feeding quietly inside the boundary fence. They were rather shy of strangers, but took dainties from the ranger's hand. Kangaroos, Wallabies, Phalangiers, Lyre-Birds, and other animals are released in the Park from time to time, and it is now fairly well stocked. Most of the animals do well.

In the afternoon we climbed to the summit of a lofty hill, overlooking the sea. Huge granite boulders were scattered among Eucalypts and She-oaks [*Casuarina*], reminding one of Stonehenge. Koalas were numerous on this windy height; nearly every gum tree contained specimens. Two young "Bears" were photographed. One vigorous little fellow resented capture, and left claw marks on the Doctor's hands. At one time, we learned, Koalas were so plentiful on Wilson's Promontory that thousands were killed each year by trappers. On the way to the beach we passed through lightly timbered areas, and saw flocks of Pennant's Parrakeet [*Platycercus elegans*], whose blue and crimson plumage gleamed among the dark foliage. Several Wallabies were startled from their resting places, and went pounding down the hillside. One large specimen sprang up almost under my feet; we were both startled, but the Wallaby recovered first, and was out of sight in a minute.

Wilson's Promontory may become the last refuge of many species of native animals, and therefore the Mecca of Victorian naturalists. The flora, also, is of much interest, hundreds of species having been recorded.

* * * * *

A rare and beautiful bird, the Helmeted Honey-eater [*Ptilotis cassidix*] was the object of a quest that



KOALAS OR "NATIVE BEARS."

led me through miles of wild bush to a creek, which had previously been associated with Bell-Miners [*Manorhina melanophrys*]. Bird lovers often visited Cardinia Creek, Beaconsfield, for the sole pleasure of hearing and seeing these lively birds, which nested in a patch of scrub. A bush fire destroyed their haunt, however, and the colony moved elsewhere—a general exodus. The Bell-Miner's notes are musical, and when scores of the birds are "tolling" in chorus the Bush seems to be haunted by bands of fairy bell-ringers.

Hearing that Helmeted Honey-eaters had been observed on Cardinia Creek, I arranged to visit the locality at the earliest opportunity, and try my luck with a camera. The first nest of the species known to science was found in 1884, on the banks of Olinda Creek. It was obtained, at the expense of a ducking, by an ardent field naturalist. The birds had chosen a horizontal branch overhanging the water, and it broke when the climber was reaching out a hand towards the nest. The brooding bird clung to the nest until the water closed over it, and neither she nor the eggs were injured by the fall. The range of this species, so far as known, is restricted to South-eastern Victoria. Few naturalists have seen the nest *in situ*, and the eggs are coveted by collectors.

Accompanied by a fellow bird lover, I went to Beaconsfield in October, 1912, confident of success. My companion, who was familiar with the district, took the lead. After a long, hot walk over hills and through scrub, we reached a sunny spot on the bank of Cardinia Creek, and while the billy boiled prospected for nests. A cheery cry from Wilson announced success. The nest, which contained two flesh-coloured eggs, was in a bush growing from the creek's bank, close to the water. Withdrawing to cover, we waited for the birds to return. When the female came, and settled on the eggs, I crept forward, peered at her, and

formed a plan of action. It was a puzzle to fix the camera. One tripod leg was plunged into the bush, and the others, wide apart, in the crumbling bank of the creek. It was still more difficult to focus. The bird became restive, and a slight noise made in



NEST OF HELMETED HONEY-EATER

(Containing egg of *P. Cassidix* and Pallid Cuckoo's egg—on left).

handling a dark-slide confirmed her suspicions. Slipping from the nest, she flew down stream, bearing with her my hopes of a unique photograph. Still, it was a memorable day. We were able to observe the rare birds at close range. And the nest near camp was not the only one discovered; no fewer than four others rewarded a diligent search. The last of the series, found towards sundown, contained an egg of the Pallid Cuckoo and one of *Ptilotis cassidix*.

Many birds are "touchy" in nesting time; the Helmeted Honey-eater is distinctly aggressive. Mr. F. E. Wilson, who is an authority on the species, once observed a male *Ptilotis cassidix* attack and rout a flock of *Sitellas*. When one of the small birds tried to leave the flock it was "rounded up" by the angry Honey-eater, which drove the invaders from its domain as a cattle dog drives sheep from forbidden pasture.

Homeward bound, we came again to the domain of Emu-Wrens [*Stipiturus malachurus*], an acre or more of uncultivated land fenced by Eucalypts. Here Heath [*Epacris*] "Wedding-Bush," and other plants thrive so well that it was toil to wander through them. Some bushes were overgrown by a parasitical creeper [*Dodder*], with pale yellowish stems, and fruits like red beads. In the forenoon we had spent an hour searching in vain for nests of the Emu-Wren. The nests, which are small, are always well hidden, and in this miniature forest the chance of finding one was slender. Still, we searched methodically, examining every foot of different areas that were selected after watching pairs of birds. I fancy that they enjoyed the game, and had little fear of losing it. Once I felt sure that I was on the right trail. A male bird was flushed from a bush and flew a few yards; a moment later a female followed. I explored the spot whence they came, but there was no sign of a nest. Then I watched the birds, which had been dodging about nearly all the time. Presently they flew in company to another likely place, about fifty yards distant, and their actions indicated that the nursery was there. I crouched and crept towards them, marked the bush which seemed to attract them most, and searched again. The birds soon returned to the spot where they were first seen. My companion had met with the same luck, and we continued our interrupted journey, resolving to try again another day. But that day was a to-morrow that never came; for

bush fires swept the locality in mid-summer, and doubtless many of the Emu-Wrens, as well as their undiscovered nests, were destroyed.

The Emu-Wren is a tiny bird of great beauty. The long tail feathers are loosely webbed, resembling those of the Emu, and are held erect over the back.



HAUNT OF EMU - WRENS, SPRINGFIELD, TASMANIA.

The blue colouring of the throat distinguishes the male bird, and its tail feathers are more developed than those of the female. The Emu-Wren's wings are short and rounded, and its powers of flight are weak. It is more at home on the ground than in the air, and runs and creeps nimbly as a field mouse.

I had better fortune among the Emu-Wrens during a holiday at Springfield, Tasmania. Miss J. A. Fletcher, a keen observer, who had charge of the school there, showed me several nests close to her home; and I discovered two more in a paddock a mile away. Some

contained eggs and others nestlings. The parent birds were dodging among the bushes and the long grass in which their nurseries were built, all the time; but none of my long vigils with the camera was successful. The birds were too elusive, and always kept out of range of the lens. It was delightful to watch their glancing forms; to be on rather friendly terms with them; and at least gain some knowledge of their domestic life. A favourite haunt was a patch of jungle, near an old log hut on a rise, dotted with gum trees that fire had killed. It was a "snaky" region, too. While I was at Springfield a lad was bitten by a venomous snake; but, fortunately, his life was saved by prompt action. Miss Fletcher, wisely, wore stout leather gloves when searching for nests in the grassland and swampy places. She knew all the birds of the district; and many that frequented the school ground and her garden were fairly tame. A Gray Shrike-Thrush [*Colluricincla harmonica*] every morning flew on to the sill of the kitchen window, and pecked at dainties placed there for it, while Miss Fletcher and her sister stood close by. Wild nature can be won by kindness; fear is the fruit of persecution. Springfield is far from Gippsland, but in memory it is linked with that incult paddock where the Emu-Wrens outwitted us, because at both places the small birds were seen at their best.

CHAPTER III.

SEA BIRDS' HAUNTS

PERHAPS it is a relic of boyhood, this keen delight in lonely isles that lures so many landmen to the sea. Or it may be that sirens send musical messages to win us away. Certain it is, that islands, especially such as are inhabited only by wild creatures, possess an elusive charm. Australian seas are rich in isles, many of which are sea birds' nesting haunts.

The islands of Bass Strait have long interested naturalists. Some years ago the Royal Australasian Ornithologists' Union chartered a small steamer for a cruise among the isles, and I was one of her passengers. Later, as a special representative of the Melbourne *Herald*, I enjoyed a cruise on the Federal Fisheries' Investigation vessel, *Endeavour*. These two short voyages enabled me to study "island life" under the most favourable conditions.

King Island, which in recent years has become well populated, lies midway between the south-east of Cape Otway, on the Victorian coast, and the north-west corner of Tasmania. It was frequented only by fishermen and sealers in the early days. Going ashore in November, 1908, at Currie Harbour, we found a thriving township, and stayed at a large and comfortable hotel. Two days were devoted to excursions. The sand-blow, some hundreds of acres in extent, at the south-western end of the island, is a place of bones. Tons of sub-fossil remains are scattered about on the surface, and vast quantities, doubtless, lie hidden beneath the sand. We collected Wombat skulls, portions of the skeletons of "Native Cats" [*Dasyurus*] and Wallabies, leg bones of the Emu and fragments



THE VALLEY OF DRY BONES, KING ISLAND.

of eggshell. Lower jaws of Wallabies were most numerous. Portions of Seal skeletons were observed, and bones of sheep also were scattered over the sand. I had the luck to discover a specially fine Wombat skull, which is now in the National Museum, Melbourne.

A member of our party zealously collected the largest bones he could find and returned to the boat (we had come round the coast in the steamer) laden with the spoil. When he showed them to an expert he was disgusted to learn that nearly all the bones which he had gathered were remains of the common sheep, and cast the "rubbish" into the sea.

Most interesting of the sub-fossil remains from King Island are those of the Emu, a species which has long been extinct. Peron, the French naturalist, saw the great birds alive. At the time of his visit men on the island owned dogs which had been trained to hunt Kangaroos and Emus. The King Island Emu was distinct from the Tasmanian bird (also extinct), and the form that still flourishes in Australia. It is most regrettable that two members of the remarkable family, *Dromæidæ*, should be in the Legion of the Lost. The King Island species was abundant when white men first settled there, and must have been warred against mercilessly. Animals on a small island have no way of escape; hunted from one refuge to another, extermination is their certain fate.

We were puzzled to account for the presence of such vast quantities of sub-fossil remains in a restricted area. One theory advanced was that Bush fires had driven the animals to the place where they perished, and left their bones to astonish naturalists of a future age. Another suggestion was that, feed being particularly abundant in the area now covered by sand, it became a favourite resort of wild creatures.

Penguin Island, one of the western isles of Bass Strait, is honeycombed with burrows of *Eudyptula*

minor. Walking over the rookery, one's feet break through the earth crust and sink into tunnels, so that progress is slow and laborious, unless one is careless of destroying bird homes. Even when caution is exercised, it is impossible to avoid ruining a few burrows. Our party was responsible for the breakage of a score of eggs, but I hope that none of the birds was crushed. We saw little of the Penguins, save when a burrow was explored. Many birds were "at home," but they were unwilling to receive visitors, and more than one naturalist repented of his eagerness to bring a Penguin from its nest. For the brave little birds snapped fiercely at hands which attempted to grasp them. In some cases the burrows were under bushes, and had probably been made originally by Short-tailed Petrels or Mutton-Birds [*Puffinus brevicaudus*]. Cavities at the ends of rock crevices were tenanted. The nest proper, in each instance, was a domed chamber, with a carpet of dry grass or weeds.

The Little Penguin lays two eggs to a clutch. The shell is white and of coarse texture, but slightly glossed. In his charming book, "Antarctic Penguins," Dr. G. Murray Levick, R.N., says that the Adélie Penguin [*Pygoscelis Adelie*], seen for the first time, gives one the impression of a very smart little man in an evening dress suit, an admirable description. The Little Penguin also is "the gentleman." If it were a creature clad in fur, instead of feathers, and could thrive away from the sea, it would become as popular in drawing-rooms as Persian cats and Pomeranians are at present; and children would demand Penguins instead of Teddy Bears. About eighteen inches in length, the Little Penguin wears a light blue coat, while the under part of the body is covered in silvery white feathers. The chicks, clad in dusky down, resemble balls of fluff. They cannot endure strong light, and two that were taken from a burrow on Penguin Island, crouched, with closed eyes, against the rock.

Clumsy and slow ashore, in the sea Penguins move swiftly, with ease and grace. They are master mariners. From a cliff at Sandringham, on Port Phillip Bay, I have often watched Penguins chasing fish in the shallows. They dart through the water like



YOUNG FAIRY PENGUINS.

torpedoes, propelled chiefly by their paddle-shaped wings. The call note is a curious barking sound, which echoes far over the sea.

On Penguin Island we discovered a small rookery of Pelicans [*Pelecanus conspicillatus*]. There were about a dozen nests, each containing two eggs. The birds were extremely wary; they flew out to sea when we were fifty yards from the rookery, and did not return until our boat had left the island shore. The cinematograph operator never had a chance.

From Penguin Island we cruised to Albatross Island, where the big sea birds nest. But waves were spouting high on the granite cliffs, and the skipper refused to risk a boat, though we thought that there was a forlorn hope of landing. We had to be content with a distant view of snowy-plumaged birds, sitting serenely on nests among the heights. Few naturalists have been on Albatross Island, and the birds are fairly safe there, even from plume hunters.

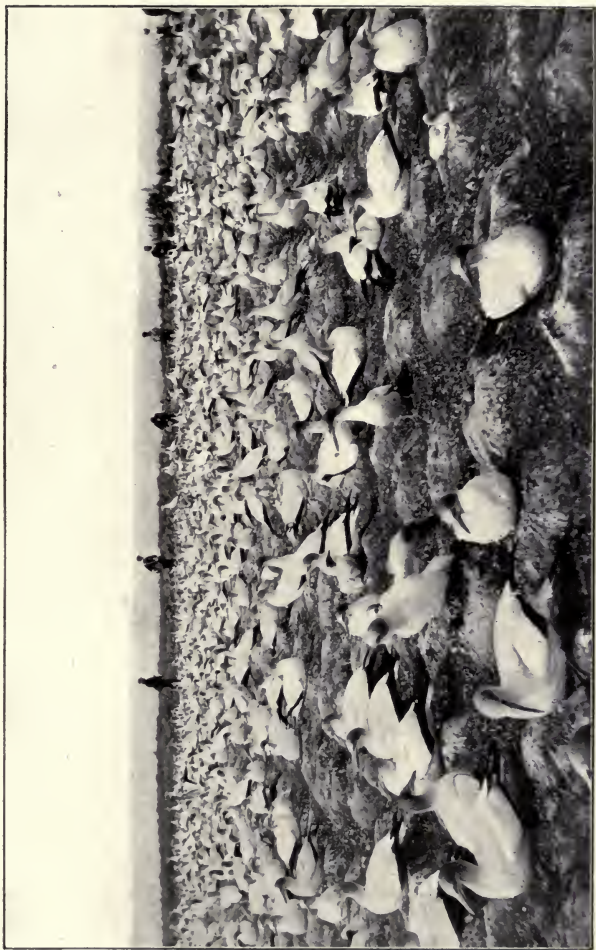
Three Hummock Island, the home of a lonely family and a herd of cattle, was our next call. The islanders were delighted to welcome us, and bestowed generous hospitality. We dined on fried Mutton-Bird eggs, not exactly a dainty dish, but most acceptable when one's appetite had been sharpened by sea air. Close to the cottage, on a slope fronting the sea, was a Mutton-Bird rookery. Borrowing crooks, we explored some burrows, and gathered a score of large white eggs, which were handed over to the cook on the steamer.

The eastern islands of Bass Strait are in some respects more interesting than those of the west. Cape Barren Island, visited in the course of our ornithological cruise, is the home of a remarkable people. Truganina, the last of the Tasmanian race, died in May, 1876, at the age, it is believed, of seventy-three. The tribes of Tasmania were terribly persecuted, and their story is one of the saddest in Australian history. Those who wish to read it can do so in Bonwick's pages. In the early days many of the native women, chiefly Tasmanians, became wives of white sealers and sailors, who made homes among the islands. Some of their descendants live at Cape Barren. There is more than one type; some of the natives possess woolly locks, and others long, lank hair. Many of the children are handsome. One boy especially caught our fancy. He had abundance of curly hair, a finely moulded face, and large, intelligent eyes. The skin colouration of the Islanders varies considerably. Some

of them are nearly white, some pale-brown, and others so dark-skinned that they would pass for pure-blooded blacks. A few white people live on Cape Barren Island. There is also a school, and the young Islanders are educated. Many of them read and write well. They can sketch, too, on slates, and a boy showed me a spirited drawing of a Mutton-Bird. The drum and fife band is a popular institution. One need not be dull at Cape Barren.

The Islanders live in small huts clustered around the harbour. The men are boat-builders and navigators, and make voyages in small craft across the stormy Strait to the Mutton-Bird islands. Their principal industry is gathering nestlings of the Short-tailed Petrel, which form their staple food during the greater part of the year. A little sealing is done, but it is upon Mutton-Birds that the Islanders depend for sustenance and trading. On Babel and other islands, where large rookeries exist, they have built rude huts, which are inhabited during the periods of harvesting chicks. An exodus from Cape Barren to the bird-isles takes place when the time for "business" arrives. Young birds are killed by dislocation of the neck; the bodies are plucked and scalded, and the feet removed. Subsequently, when they have been decapitated and cleaned, the birds are pickled in barrels. Birds preserved in this manner are marketable.

Though the Islanders have been engaged in the Mutton-Bird industry for many years, the rookeries still give abundant yields. It is impossible to estimate the numbers of these Petrels that nest on Bass Strait islands. In summer they appear in great flocks, which darken the sky or extend for miles over the sea, forming a dusky carpet, that rises and falls with the ocean swell. Matthew Flinders records having seen a flight of Mutton-Birds in the Straits in December, 1798. On the lowest computation, he



GANNET ROOKERY, CAT ISLAND.

thought, the number of "Sooty Petrels" could not have been less than one hundred millions. In the vicinity of Cape Woolamai I have seen flocks composed, certainly, of more than a million birds.

Cat Island is the nesting place of thousands of Gannets [*Sula australis*], and the rookery presents a wonderful sight in the breeding season. Nests are so numerous that, walking among them, one is within reach of sharp beaks all the time. The birds are rarely disturbed, and, consequently, are unafraid of man. When we visited Cat Island most of the Gannets were brooding. A dozen members of our party invaded the rookery, and only a few birds took wing. The report of a gun served to scare some hundreds more. We had come, not to kill, but to study, and the object of the shot was to enable a cinematograph operator to take a flight picture. He had great expectations, which were not fully realised, for the seabirds declined to rise in a body. The air, however, was crowded with flying forms, mostly Gannets returned from fishing. Every minute some descended, while others rose from the rookery, here and there. The moving picture man exposed a long film, and became more cheerful.

The Gannet lays only one egg to a clutch. The nest, composed of soil, debris and guano, is mound-shaped, and concave at the top. It may measure five feet or more in circumference, and from four to six inches in height. The Cat Island rookery resembles a little city, in which all the houses are alike. The nests are built at nearly an equal distance apart, in rows, and the rookery shows more evidence of design than do many Eastern villages. It would repay continuous study in nesting time. Naturalists have made only flying visits to Gannetopolis, whereas a month would not be too long a period to spend there.

Dispositions differ, even on Cat Island. Some of the birds are peaceful, others are inclined to quarrel.

If a homing bird alights too near its neighbour's nest, it may be greeted by a peck, though serious disturbances are rare. But there are enemies within the gates, Pacific Gulls [*Gabianus pacificus*] and Silver Gulls [*Larus novæ-hollandiæ*], which nest among the tussocky grass around the rookery, and prey upon the



GANNET ON NEST.

eggs of their big neighbours. If a Gannet leaves its nest unprotected for a few minutes a Gull is sure to seize the opportunity—and the egg. The Gannets, however, are wary, and such chances rarely occur. Gulls do not disdain to feed upon the “crumbs” left over from Gannet meals; they patrol the rookery and pick up bits of fish. These scavenger birds are beautiful, and it seems a pity that their habits should be so depraved. The Pacific Gull, much the larger of the two species, possesses a raucous voice, while the Silver Gull's notes are rather pleasing, at least to

a bird lover. Whenever I hear Gulls calling along the coast near my home I long to be among the isles again.

Before leaving Melbourne we were advised to "look out for snakes" on Cat Island. It was stated that venomous species swarmed among the grass tussocks, which must be traversed to reach the rookery. On landing, we remembered the warning and walked warily. Some of us wore leather leggings, others had puttees, and one of the sailors went barefooted. Snakes may abound on Cat Island, but they were not much in evidence on this occasion, for only two were reported. Apart from the main rookery, we discovered a small colony of birds, the aristocracy of Gannetopolis, no doubt. I spent some time there, and obtained a fine series of photographs, as the birds were quiet and posed beautifully.

Close to Cat Island lies Storehouse Island, where several Cormorant rookeries exist. Landing on the wave-swept granite rocks was difficult, and one member of our party met with disaster. He leaped too late as the boat was falling back, and splashed into the sea. Fortunately, he managed to reach a rock and scrambled ashore, drenched. Then he emptied his coat pockets, displaying a mess of broken eggs, studded with coins and miscellaneous objects. This mishap was retribution for robbing nests in the Gannet rookery. Our comrade was unprovided with collecting tins, and had slipped two or three eggs into his pockets. He was philosophical, and laughed with us, as he stood shivering on the rocks.

The Cormorants [*Phalacrocorax gouldi*] were nesting close to the landing place, a company of solemn looking birds, with white breasts and greenish-black plumage on the upper part of the body. Some were standing, with wings outspread, others sat on the nests. As we drew near the birds became suspicious, and presently all were gazing in our direction. Cameras were used quickly, and, foot by foot, we

crept forward, till a dozen birds took wing; a minute later the others rose and circled in the air. The nests, composed of seaweed, mingled with evil-smelling guano, were built in terraces on the bare rock; some were on ledges only a few feet above the sea. Both eggs and nestlings were observed. The latter



PACIFIC GULL'S NEST AND EGGS.

were ugly objects, covered in dusky-brown or blackish down. The odour arising from the rookery was so strong that we did not linger there. Death had been busy among the nests, and decayed bodies of many chicks were festering in the sun. Some of the innocents had been trampled flat. One nest contained three chicks, two dead and the other alive. Decomposed pieces of fish were scattered among the nests. No sanitary inspectors here, to insist upon cleanliness. Farther along the coast a second rookery was dis-

covered. There were over one hundred nests, nearly all containing eggs.

Fishermen regard Cormorants as their worst enemies. They assert that the birds take heavy toll of edible fishes, and urge that the race should be exterminated. It cannot be gainsaid that Cormorants are fish-eaters, with hearty appetites; but fishes are so abundant in the Straits that the birds should not be grudged a share in the harvest.

Cat, Storehouse and Babel Islands lie to the east of Flinders Island, the giant of Furneaux Group. We arrived off Cat Island in fine weather. But the captain had warned us that, if the wind changed, he would have to clear out, sharp. The wind did change. We naturalists were all ashore when the steamer's siren rang shrilly over the sea, twice, impatiently the second time. We hastened to the boats, but one man, who had wandered far around the coast on Storehouse Island, caused delay. He was missed when the roll was called. The sea was rising, and the wind began to blow fiercely. Even the short passage to the steamer was rather dangerous. Immediately all were safe aboard, the vessel made for the open sea. She had to win through a narrow channel, and all the time the wind was pressing her towards the rock-bound shore of Cat Island. Beyond the entrance to the channel, we saw surf flying over a reef. It was a passage perilous, or seemed so to landsmen, and none of us was sorry when the steamer reached shelter under Babel Island, where she rode out a stormy night.

Flinders Island, like its western sister, King Island, is becoming civilised. But at the time of our visit there were few inhabitants. We put in to Killiecrankie Bay, where several half-castes were living in little log huts. A ramble along the beach to Killiecrankie was full of interest. Some of us climbed high among the boulders, while others enjoyed



CORMORANT ROOKERY, STOREHOUSE ISLAND.

a swim. Black Oyster-catchers [*Hæmatopus fuliginosus*] were parading the beach, uttering their mournful notes. A downy chick was captured near a rock, and photographed. It did not offer any objection, in fact, became rather friendly.



NEST AND EGGS OF OYSTER-CATCHER.

In "The Lost Tasmanian Race" Bonwick relates that Walter, the son of "King George," a Tasmanian native, presented to him "some pebbles in a bit of rag." These were Killiecrankie "diamonds," gathered on Flinders Island; they were the poor man's treasure, and Bonwick cherished them as a memento of his "friend Walter." Among the shingle at the foot of Mount Killiecrankie, there were quantities of these crystal-like pebbles, and we filled our pockets with them. Some were large as marbles, others the size of a pea; they varied greatly in shape, the majority being very "rough diamonds." Real treasure

trove was obtained at one of the huts. An object of the call at Killiecrankie was to obtain information regarding the Wombat, and, if possible, collect specimens. The half-caste men were familiar with the "Badger," as they called it. A naturalist's roving eyes discovered in a deserted hut two skins of the much-desired marsupial. These were secured, and arrangements made for the natives to obtain living "Badgers" and send them to Melbourne.

The Bass Strait species of Wombat was long believed to be extinct, though some naturalists thought that it survived on Flinders Island. Mr. J. A. Kershaw, F.E.S., Curator of the National Museum, Melbourne, was a member of the Ornithologists' party that visited the island in 1908. He obtained the skins, as described, and gathered other evidence to justify the belief that the species was not extinct. The skins which he secured had evidently been used as mats in the old hut; now they are treasured in a great museum. Subsequently, living Wombats were sent from Flinders Island to Melbourne. I saw one of these at the Museum. It was a friendly animal, and allowed its head to be stroked—indeed, seemed to enjoy the caress.

When at Endeavour Bay, in 1909, I went ashore for an hour, and strolling along the beach, found a Wombat's home, a low cave in soft rock some thirty feet above high tide mark. There were fresh footprints on the sand at the mouth of the cave, whose dimensions, however, were too small to permit of exploration.

On the voyage back to Melbourne the steamer called in at Kent Group, some fifty miles south-east of Wilson's Promontory. Five islands compose the group, Deal being the largest and most picturesque. Erith and Dover Islands, linked by a narrow isthmus, are opposite Deal Island, and the intervening seaway is known as Murray Pass; it is about one mile across, and a strong current flows through. Rowers

need muscular arms to pull a boat from Deal to Dover. The remaining islets are named South-West and North-East respectively. The former is a bleak rock, and the latter, on which Mutton-Birds nest, has an area of about five acres.



AN ISLAND GARDEN.

On Deal Island there is a lighthouse, 900 feet above sea level. We naturalists received a warm welcome from the lightkeeper and his family, and a day was spent, pleasantly enough, rambling over the island. One of the keeper's daughters owned a delightful garden, sheltered from winds by a brushwood fence. It was not large, but when the young gardener flung open the gate and invited us to enter, our eyes were dazzled by glowing colours. Here were old-fashioned plants blooming on a lonely island; the

sight was refreshing, and the perfume sweet. Around the fence grew giant mallows, with crimson flowers; here was a bed of mignonette, there a cluster of larkspurs, purple, pink and Kingfisher blue. There were daisies and marigolds for borders, a plot of roses, and shrubs and creepers. We were presented with button-hole posies, and carried from the island-garden some seeds which germinated in ground hundreds of miles away.

A pet Opossum [*Trichosurus caninus*] was proudly displayed by the young gardener. We made overtures which were not kindly received; the marsupial clung to its mistress, and, when she put it down, scrambled over the fence and disappeared. The Short-eared Phalanger is found both in Tasmania and on the mainland, as well as islands in Bass Strait. On Deal Island, it is stated, these animals rarely leave the ground, and instead of eating Eucalypt leaves, feed upon succulent plants. Fossil remains of a Kangaroo have been recorded from Deal Island.

On the way from Kent Group to Port Phillip, our steamer was caught in a gale off Wilson's Promontory. She rolled to an alarming angle sometimes, and could scarce make steering-way for awhile. But it ended all right. For the most part, the weather had treated us kindly, and the gale was only a boisterous farewell from wind and wave.

* * * * *

On board the *Endeavour** I made a second cruise in Bass Strait, in May, 1909. The late Mr. H. C. Dannevig, Commonwealth Director of Fisheries, afforded me every opportunity to gain knowledge, and I gleaned some points of navigation, as well as learning much about trawling. The first trawl was shot off Sealer's Cove, east of Wilson's Promontory, in sixteen fathoms. As it proved, the bottom was unsuit-

*The *Endeavour* sailed from Macquarie Island for Hobart on December 3, 1914, and has not been heard of since. Search steamers failed to find a trace of the missing vessel.

able, and the net was hauled up, damaged; but the broken meshes were repaired by skilled hands. We anchored in Murray Pass that night, a night of wind and rain. I wished to visit my friends on Deal Island, but the current was tearing through the Pass, and it was not deemed safe to venture on a boat trip.

Before noon next day we left the anchorage, and headed for Flinders Island. In the expressive language of the sailors, we experienced "dirty" weather, and the run of fifty miles occupied many hours. And when we did make Flinders, it was only to take shelter in Endeavour Bay. Later, we steamed to West Sister Island, across the famous "pot boil," and waited for dawn. The morrow was Sunday, and shore-leave was granted. A party, with guns, tramped across the island and returned with a big bag of Hares and Wallabies. I wandered away alone, to see what I should see. Among the brushwood on high land Wallabies were abundant. Seated on a rock, in the shadow of a bush, I tried to become, temporarily, a statue. Presently a Wallaby came quietly into the open, and others followed until there were five. They fed close to me, but a sneeze, which refused to be suppressed, sent the whole mob bounding to cover. It was useless to wait longer. Walking on, I startled several Hares. The island appeared to be swarming with game. There were only two human inhabitants at that date, and the Wallabies were not much acquainted with man. Hares are always timid; I believe that, if one lived in perfect solitude for years, it would leap away like the wind at the first sight of an intruder.

The "fishing grounds" were reached on May 17th. At daylight a trawl was "shot" in forty-five fathoms, off Babel Island. For two hours the vessel steamed slowly, then the "cod-end," or basket-like portion of the net, was wound inboard by the steam winch. It was swung over the bow, and a minute later a mass of fishes and other creatures poured into the "ponds" on

the deck. Edible fishes were sorted out, cleaned and sent to the refrigerating chamber in baskets. After the *Endeavour's* biologist had picked out such specimens as he desired, the "rubbish" was flung back into the sea.

Trawling and scientific work, and occasionally line-fishing, were carried on day by day, till the



A CORNER OF THE "ENDEAVOUR'S" LABORATORY.

time for the homeward voyage arrived. It was always interesting to be on deck when the "ponds" were abrim with creatures from the sea. After the sorting one had chances of seeing crustaceans, sponges, echinoderms and molluscs. The biologist collected scores of beautiful specimens, and his laboratory became so well stocked that "Tommy," the ship's pet kitten, was perturbed. The "lab." was his favourite resort. He dozed on a cushion in a corner most of the day, and slept there through the long night.

On a subsequent voyage poor "Tommy" went overboard in a storm. Though his death was tragic, I doubt whether any cat had a happier life; nothing much to worry about, and unlimited supplies of fish.

Sea birds—Gulls, Albatrosses, Terns, and Petrels—were in constant attendance on the *Endeavour*. They were aware, apparently, that wherever the



LINE - FISHING FROM THE "ENDEAVOUR."

steamer went, the chance of obtaining food was excellent. As the trawl rose from the deep, fishes which had been crushed through meshes of the "cod-end" floated, and those that members of the crew were unable to rescue with long-handled gaffs were snapped up by the watchful birds. And when the "pond" refuse was cast overboard the birds enjoyed a merry scramble. From the stern, one day, I photographed several Albatrosses. But the steamer dipped just as the camera shutter clicked, and I nearly lurched into the sea.

Mud Island, in Port Phillip Bay, is famed among Australian naturalists as a breeding haunt of the White-faced Storm-Petrel [*Pelagodroma marina*]. I have camped on the island several times, and spent nights on the rookeries. The main rookery is at the south-east end of the island, among Blue-bush scrub,



WHITE-CAPPED ALBATROSS.

and there are many thousands of burrows. The soil is loose, and it is easy to destroy a burrow by a careless step. To reach this rookery, one must wade across a shallow lagoon.

One moonlight night I saw the Petrels come in from the sea. First two or three arrived, then a score, and presently the air was full of dusky forms, which moved swiftly but silently as moths. All day

the Petrels had been foraging at sea, far away in Bass Strait, and now they were home again, with food for their hungry offspring. Plaintive notes of welcome issued from the nurseries. The food consists of minute crustaceans, and is partially digested before being conveyed to the chicks by means of regurgitation. The number of Storm-Petrels that breed on Mud Island has been estimated at 20,000, which is probably near the mark. The island at one time was visited constantly by men who gathered large quantities of guano, and destroyed portions of the rookeries; this vandalism long since ceased, and the Petrels are protected under the State Game Act.



CHAPTER IV.

THE MALLEE COUNTRY

YEARS ago the north-western corner of Victoria was the Cinderella area of the State, now it is rapidly becoming settled, and bids fair to rival in cereal wealth regions that have long been famed for wheat-growing. So rapidly is the country being opened up, that naturalists are fearful that little of it will be left in its original state, as sanctuary for the many remarkable plants and animals that are natives of the Mallee. Government boring parties have penetrated to the most remote places, and tapped hidden water; tanks and dams exist where formerly Emus and Dingoes roamed athirst.

On maps of the Mallee you see marked the Northern, Central and Little Deserts. Most of the country is wilderness or desert, with fertile areas.

The Mallee, of course, is not confined by State boundaries, but extends into New South Wales and South Australia. I propose to deal only with Victoria's share of this strange country, which occupies about one-fifth of the State.

Toll of human life has been taken by the wilderness. Men have wandered into the lonely scrub and never returned. More than one bleached skeleton has been found, lying under a bush, with rotting swag and battered billy beside it. Death from thirst and exhaustion is the fate of one who fails to find a way of escape from the wilds. He might gather food, eggs of the Mallee-Fowl, if fortunate, but search in vain for water. I was lost once in the Gippsland bush, but I travelled all day in the shade of tall gum trees, and with a little creek for company. In the Mallee

the sun shines fiercely, and there is rarely a drop of water to moisten the parched lips and burning throat of one who is "bushed."

Ouyen, a township 289 miles from Melbourne, was the centre from which I worked in November, 1912. After a wearisome rail journey I was left forlorn on the station platform at 2.30 a.m. A light glimmered somewhere amid the outer darkness, and I stumbled towards it at a venture. Fortune favoured, for the guiding star shone from a boarding-house window, and vigorous knocking brought a response and a lodging for the night.

I had letters of introduction to a skilled bushman, but he was far away, a hundred miles or more, and I was cast on my own resources. But not for long. I found friends who offered their services. A local tradesman drove me out to Tiega, on the line to Murrayville; the schoolmaster went roaming with me on Saturday, and with the Crown Lands bailiff I made a memorable trip. For Mallee people, hospitality to strangers seems to be a pleasant duty. Now, my chief desire was to see the Mallee-Fowl [*Leipoa ocellata*] and examine its nesting mound. Of the shy bird itself I did not obtain even a glimpse, and several days elapsed before a "good" mound was located.

"There's a mound down on Jim's block," was the welcome news brought by a boy one morning; and to Jim's selection I went accordingly. The mound was there, all right, in a stubble field, but it had not been in use for years. Disappointing? Yes, but an excursion into the scrub was the reverse. A nest of the lovely Purple-backed Wren-Warbler [*Malurus assimilis*] was found in a clump of Porcupine-grass. Black-backed Wren-Warblers [*M. melanotus*] were seen, but we could not discover any of their nests. Both these Wren-Warblers are noted for beauty of plumage. They flash about the Porcupine tufts and Turpentine bushes like big butterflies, one might say,

only that their flight is so different from that of any insect, and they dart through bushes as easily as a fish through water. The Scrub-Robin [*Drymodes brunneopygius*], a rare bird, was heard but not seen. The opposite was the case with another interesting Mallee bird. The Striated Grass-Wren [*Amytornis striata*] favoured us with an occasional glimpse of its rufous-coloured body, but ran silently from tussock to tussock. The Grass-Wren is so shy that collectors experience great difficulty in securing specimens. One could wish that other native birds were as elusive.

The Mallee Eucalypts were in flower, and we frequently stopped to admire a mass of bloom, which was thronged with little honey-seekers—birds and insects. The wild creatures of the Mallee were happy in the sunshine, while we perspired and looked mournfully at an empty waterbag. Returning to the buggy, on the edge of the scrub, we drank cold tea and clustered in a patch of shade, as shipwrecked men huddle on a raft. The sunlit earth beyond the shadow was the “sea” that we dreaded.

That night came news which raised hope above temperate level. The Crown Lands bailiff brought it, and offered to drive me to a selection, about twenty miles out, where several mounds of *Leipoa ocellata* certainly existed. Early next morning we left the township, and before the sun was high had broken the back of the journey. Every mile of the way was interesting, but the “going” was generally heavy. Sand lay feet deep in some places. We drove through a grove of Murray Pines, traversed some open, lightly timbered country, and passed several homesteads. Occasionally we saw a Bearded Dragon or Jew Lizard [*Amphibolurus barbatus*], basking on a fence post. When we came to the wilderness, my friend guided his team right into the scrub. The small Mallee trees are brittle at the root, where the stems break easily, and we bowled along to the accompaniment of crack-

ing and swishing sounds. Now and then a limb sprang at us like a relaxed bow, and some smart cuts on the hand reminded me of schooldays. We passed near a block on which a Mallee roller was at work, flattening the scrub for burning off. This is the first



BEARDED DRAGON OR JEW LIZARD.

phase of clearing; next the roots (famous fuel) are grubbed from the ground, which is then ready for the plough.

When we halted for lunch, far from the outpost of settlement, my companion formed a sun-shelter by stretching a dust-rug between four long stems of a gum tree. Even in shadow, the heat was sweltering—perhaps a thermometer would have topped the century. Heat, flies and mosquitoes formed a trio of discomforts. And yet, I was content. Out here in the wild scrub the charms of solitude were realised.



IN THE HEART OF THE MALLEE.

Standing on a knoll, I gazed over miles of uncultivated land, green foliage everywhere, glimmering beneath a sky of burnished blue. The Mallee is most beautiful in spring, when wonderful shades of green mingle through the scrub, and dew lingers after sunrise; when the air thrills with bird song, and all the world is young. In summer birds and blossoms delight one, but the foliage loses its magical tints, morning its freshness, and the sun becomes a burden. Still, the Mallee must be seen in both these moods, for each is beautiful.

After lunch we followed a line of surveyor's pegs to the edge of the unknown. It was strange to stand beside the last post, and try to realise that between it and the Murray there was only trackless bush. I did not venture far into the undiscovered country, for it is easy to become "bushed" in the Mallee. Exploring the scrub on either side of the survey line, we found many traces of Emus and Kangaroos, but saw none of the animals themselves. Under nearly every clump of Mallee there was a slight hollow in the sand, the resting place of a Kangaroo, while Emu tracks were noted around the Quandong trees. We were led astray by the ventriloquial efforts of a Crested Bell-Bird [*Oreoica cristata*]. Now the notes seemed to issue from a bush close by, then they sounded from afar. Finally, the bird was discovered perched on a bough not a dozen yards from the survey track. The bell note was musical, a dew drop of sound, and welcome in that lonely spot. A Rufous-breasted Whistler [*Pachycephala rufiventris*] favoured us with a song, sweet and sustained; and when we reached the buggy a Yellow-plumed Honey-eater [*Ptilotis ornata*] flew over, with tuneful hail and farewell.

It was now after noon, and no time was lost in getting back to the road. An hour's drive brought us to a selector's home, and after a brief rest, and a drink of cool water, we set out for an uncleared block,

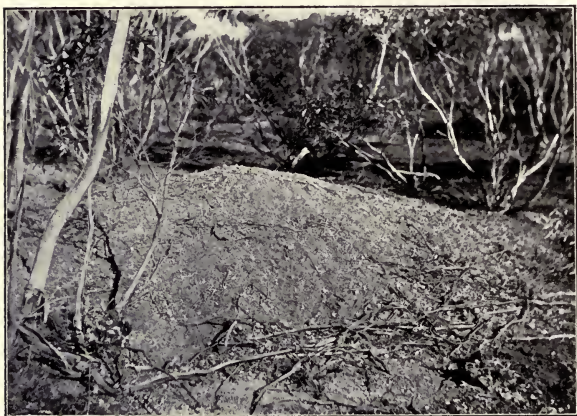
to seek mounds of the Mallee-Fowl. The journey afoot was not long, but rough, and my legs ached. Across acres of land, on which the "rolled" scrub lay thickly, we toiled, along a sand ridge capped with Pines, and down into the Mallee. Though the scrub was fairly dense, our guide, who knew every foot of the block, chose easy tracks, and with a little care for low boughs and some dodging and scrambling, we made good progress. Bird life was abundant, and several nests were noticed. But we were after bigger game than Honey-eaters and Wrens, and let nothing detain us long on the way to the Lowan's mound.

"Just through there," said the guide, pointing down a natural avenue, with a little glade beyond. And a minute later we stood beside the mound. When wind stirred the branches long thin shadows rippled over the miniature pyramid, which was not in the centre of the glade, but on the western side, close to the palisade of trees.

The guide, after a brief inspection, remarked that the mound looked "all right," but it was possible that somebody had "been around." Under the Game Act, Lowans and their eggs are protected, but there are many people who care little for laws, when they run counter to their own desires. Mallee-Fowl's eggs are delicacies, and, even in sparsely settled districts, the mounds are not safe from pilfering hands. I examined five mounds in one locality, and each was empty. Dingoes and Foxes, of course, dig out and eat eggs, but man is, perhaps, the worst enemy with which the Lowan has to contend. When the "tucker box" is low, and delicious eggs are obtainable, it is not strange that a settler should yield to temptation. Unless a very extensive area of the Mallee country is strictly reserved as a sanctuary, the Lowan must ultimately become extinct in Victoria.

Our guide's fears that the mound in the glade had been robbed were well founded. When it was opened

up there was not even a piece of shell in the egg chamber. But it was strange that the hollow should have been filled in, and the dome raised, as we found it. For there were indications that it had contained eggs; in fact, birds had been observed in the vicinity only a week prior to our visit. A second mound, half a



NESTING MOUND OF LOWAN (CLOSED).

mile distant from the first, was also examined. From this incubator the chicks had escaped, apparently, to begin their free life in the scrub. There was no dome in this case, only a hollow, with low, smooth ramparts of sand around it. Pieces of eggshell were picked from loose sand in the cavity, and there were some fragments near the mound.

The name "Thermometer-Bird" has been suggested for *Leipoa ocellata*, and it is not inappropriate. But the native word, Lowan, is more musical, and preferable even to Mallee-Fowl. The habits of these

remarkable birds have often been described, but in recent years new facts have been gleaned by keen observers. Lowans are industrious birds. Both sexes share in the mound-building, for which large quantities of vegetable matter and sandy soil are required. In some cases material is brought from a



NESTING MOUND OF LOWAN (OPEN).

considerable distance, the birds scraping it along the ground with their powerful feet; the wings, also, some observers state, are used, and frayed feathers tend to prove this. An old mound may be renovated or a new one built each year. In either case, the preliminary work is done in autumn, the mound being left open. Before the winter rains begin the birds scrape vegetable matter and other debris into the hollow, and their work ceases, perhaps for several months, until the heap has become sodden, when a layer of sand is added. Follows another period of waiting, while the hot-bed is getting up steam, as it

were. At length the incubator is in working order, and egg-laying begins.

The eggs, which are large and of a delicate pinkish-brown colour, are ranged in tiers, each resting on the smaller end in a vertical position. A layer of sand covers the hot-bed, and a stratum protects each tier, so that the eggs are enveloped in sand. The temperature of the egg chamber varies from 90 degrees to 96 degrees F. The parent birds' duties do not end when the full clutch of eggs is safely in the incubator; they open the mound at intervals to prevent the consolidation of the material, and render it easy for the chicks from the eggs of the lower tiers to reach the outer world. Those hatched from the top row of eggs, being near the surface, scramble through without much difficulty.

Driving back to Ouyen from the scrub where the Mallee-Fowls' mounds were located, we passed several lonely homes. Once or twice we stopped for a few minutes, to exchange greetings, discuss weather prospects, and admire crops or "improvements." In a small hut two brothers, well educated men, were living. They gave us water, which was most acceptable. In some parts of the Mallee a cup of cold water is no mean gift, as I learned from a mild rebuke. Filling the waterbag at a tank on a selection, I left the tap so that drops fell from it slowly, as moisture slides from a leaf after rain.

"It's dripping, mister; please turn it off," said the settler. "You know, that water was carted ten miles."

Nearly every Mallee homestead possesses a pet of some kind. At a galvanised-iron shanty we were introduced to a young Galah, perched on a soap box. It was a greedy bird, and ate soft food, from a spoon held to the beak by its owner, as eagerly as if it had been starving for a week.

Along the road hundreds of large golden-coloured beetles were seen, darting through the air like toy

flying machines. They made a loud buzzing noise, and travelled so swiftly that it was not easy to make a capture. However, after chasing a dozen vainly, I brought down a fine specimen, and imprisoned it in a wooden matchbox. It proved to be a species of *Buprestid*, nearly two inches in length. Preserved in formalin, this "aeroplane" beetle is a souvenir of days in the Mallee.

An excursion in the direction of Murrayville was not fruitful so far as natural history was concerned, but enabled me to see more of home life in the back-blocks. The sun was so fierce that my head, though protected by a broad-brimmed hat, throbbed painfully, and I was glad when, stopping at a cottage, we were invited to afternoon tea. We were not ushered into an elegant drawing-room to sit on spindle-legged chairs, nor were Dresden China cups handed round on a silver tray. No, we entered a rough room, sat, one on a box, the other on a backless chair, and drank from bush cups. Bare-legged children, instead of daintily clad women, hovered around and shared in the tea and "tucker." The eldest son, a youth of eighteen, had met with an accident working on the selection, and lay on a bed of suffering. The air was stifling, and he was tormented by flies and mosquitoes, but he did not complain; on the contrary, he spoke cheerfully, and told his mother that he was "all right." They are made of stern stuff, some of these pioneers, who tame the wilderness. The men, young and old, endure hardness, and the women are heroic. Here was a mother, who had to do the housework and prepare meals, besides attending to a sick son and a flock of young children. Yet she bustled about with a smiling face, to provide chance visitors with refreshment.

In the Mallee I crossed more than one humble threshold to stand on bare earth. Some of the small houses are built almost entirely of galvanised iron,

and in the daytime the air becomes heated, so that it is penance to be under the roof. On a broiling afternoon I spent fifteen minutes in one of these dwellings, changing plates in the dark-slides, and emerged limp and perspiring, as if I had been over long in a Turkish bath.

One of the most picturesque homesteads that I visited in the Mallee country is inhabited by a large family, which lives in the patriarchal style. Most of the sons and daughters are grown up, and when the family assembles for a meal the scene is impressive. The father, a handsome white-haired old man, presides at the head of the long table, whence his eyes can range over two rows of "children" to his wife, seated at the other end of the board. It was a privilege to join this family circle, if only for a day. I came an utter stranger, and was welcomed like a son.

In the Mallee one meets all sorts and conditions of men. The sun-tanned settler, who shouts a greeting from amid the wheat, may have been tinker, tailor, clerk or policeman before going on the land; the "man with a hoe," perhaps, was a pressman in other days. Many of the settlers are prosperous. A young man who earned forty shillings a week in the city may win an income of £500 a year from his Mallee block. But the loafer had better remain among crowded streets; the Mallee is no place for idle hands. Labour and determination are essential to success. Some men are easily beaten, a bad season drives them on to the reef of failure; while others, stout of heart, weather every storm and reach the port of prosperity.

* * * * *

When on a visit to Lake Boga, 205 miles from Melbourne, I was driven out to a small patch of Mallee scrub, a kind of private sanctuary, surrounded by cultivated land. The owner had protected Lowans and other birds, and a day spent in the scrub was marked by many pleasant experiences. No fewer

than three mounds of the Mallee-Fowl were discovered, and one was at an interesting stage. The birds had been at work, probably on the previous day, and the cavity was half-filled with dead leaves and twigs, mingled with sand; the ground in the vicinity of the mound was strewn with nesting material, and several trails were followed into the surrounding scrub. But the Lowans never showed a feather. Nor did we see one of the birds that day. They were not far away, we knew, but that was a poor consolation.

Several nests of the White-winged Chough [*Corcorax melanorhamphus*], a common species in the Mallee, were seen, saddled on horizontal boughs. These curious nests, composed of reddish-coloured mud, resemble large pudding basins. The feathered masons are not particular about the appearance of their work, aiming at strength rather than finish. And certainly the nests are durable, weathering wind and rain for years. Often enough, instead of building a new nest, mated birds repair an old one. The battered walls are raised to the proper height with layers of fresh mud. The lining consists of bark and grass stems, occasionally fur, and a few feathers are generally introduced. The eggs are beautiful objects, the shells resembling porcelain; their whitish ground-colour is relieved by blotches of olive-brown and slaty-blue. From five to eight eggs form a clutch, seven being the average number. It has been proved that more than one female Chough lays in a single nest, a remarkable fact, but not without parallel.

Choughs are entertaining birds. They roam the wilds in flocks, composed of six or more individuals. "Black Magpie" is the Bush name for the Chough, and it does bear some resemblance to a Crow-Shrike; but it is an anomalous bird, lacking a near relation. The Australian genus *Corcorax*, represented by a single

species, is, writes Professor Alfred Newton, in the "Dictionary of Birds," commonly placed by systematists next to *Pyrrhonorax*, "but osteologists must be further consulted before this assignment of the bird, which is chiefly a frequenter of woodlands, can be admitted without hesitation." The Chough's plumage is glossy black, with white on the wings; the bill and feet are black. The European Chough [*Pyrrhonorax*] also has glossy black plumage, but its feet are of a brilliant red colour, and the beak red or yellow. Still, it appears to be the closest relative that can be claimed for the Australian bird.

White-winged Choughs attract attention by their mournful cries; besides, they are inquisitive birds, and inclined to haunt the vicinity of a camp. When on a sheep station in Riverina, I enjoyed the company of a flock of Choughs. They were so tame that they approached close to the hut door, where I was seated, hopping and prancing in a comical manner.

Two other species of Australian birds build mud nests similar to those of the Chough. One of them is the Pied Grallina, or Magpie Lark [*Grallina picata*], a study in black and white. Only two members of the genus are known to science, the Magpie-Lark's relation being *Grallina bruijni*, which inhabits New Guinea. The Grallina's shrill call notes, "knee-deep, knee-deep," are familiar sounds, both in country and town. These birds haunt the waterside, stepping daintily over the mud or sand. They are strictly protected, for their value as destroyers of pond snails, which are intermediate hosts of the liver fluke, is inestimable. Pastoralists dread the liver fluke, which, in its mature stage, infests the livers of sheep. In addition to pond snails, Magpie-Larks eat insects, so that they must be ranked among the best of many bird friends.

The Pied-Grallina's nest is smaller and neater than that of the White-winged Chough, and is composed

usually of grey or blackish mud. Four eggs are laid to a clutch. It has been observed that the eggs vary in colour in different localities. In a district where the ground is light coloured, the eggs are likely to be



YOUNG MAGPIE - LARKS.

gray or white, with pale purple and red spots, chiefly around the apex. If the soil be chocolate or red, Grallinas' eggs from the locality show a buff-red ground colour, freely marked with rich purple and purple-red.

The last of our trio of mud-nest builders is the Apostle-Bird, or Grey Jumper [*Struthidea cinerea*]. Like the White-winged Chough, this species is an

anomalous bird, and also it is gregarious. In Riverina I saw families of eight or a dozen Grey Jumpers travelling on the ground or among the trees, one after the other, as if they were playing "follow the leader." A coach-driver gravely informed me that they were Larks. The nest of the Apostle-Bird is about the same size as, but more elegant than, that of the Magpie-Lark. Several nests were seen in a paddock that was stocked with lusty young horses, a troop of fifty or more. The animals were sportive and curious, and wherever I went they followed. When I began to climb a She-oak tree to examine a Grey Jumper's nest, the whole troop charged up and stood in a semi-circle, watching. I dropped a tomahawk, accidentally, which caused the colts to kick up their hind hoofs, snort, and toss their heads. When I descended, however, they retired and kept at a respectful distance. But no sooner was the intruder over the fence than the mob charged valiantly to the rails. It was a laughable experience, and reminded me of Gulliver's adventures among the Houyhnhnms; only the behaviour of these Riverina horses was anything but "orderly and rational, acute and judicious."

Grey Jumpers' eggs are bluish-white, blotched with umber and purple; from five to eight form the clutch. It is fairly certain that two females, perhaps more, lay in the one nest; so that the gregarious instinct dominates this species, as it does the White-winged Chough.

A Chough's nest found in the Mallee sanctuary, from which I have been led astray, was particularly interesting; it had evidently been used in several successive seasons, and was of great size, weighing perhaps 9 lbs.

Rambling through the scrub, we observed signs of the Echidna [*Echidna aculeata*], but the shy little animals kept out of sight. The "Native Porcupine" is

provided with strong limbs and claws, and is an expert excavator. So rapidly does an Echidna burrow that it is difficult to capture one, unless it is found napping. When a "Porcupine" is alarmed it usually begins to burrow, and soon is safe underground. Should it not have time to escape in this way, it forms



ECHIDNA, WALKING.

its body into a sphere, and presents to the enemy a formidable array of sharp spines. Dogs are loath to attack the creature when it plays Hedgehog, and doubtless this manœuvre foils Dingoes and other natural enemies. The Echidna's food consists of ants and termites and their eggs. The muzzle, to quote Lydekker, "is in the form of a long, slender, cylindrical, toothless beak, adapted for the protection of the long, worm-like, extensile tongue." In securing its food the Echidna adopts the same method as

the Banded Ant-eater [*Myrmecobius fasciatus*]. After an ants' or termites' mound has been dug open, the spoiler protrudes its long tongue among the swarming insects, and when the organ is covered with tiny victims, retracts it, and swallows the lot. It is wholesale slaughter.

* * * * *



ECHIDNA, BURROWING.

To reach Cantalla, a lonely lake in the Mallee, I travelled nearly 300 miles down the Murray in a small paddle steamer from Swan Hill. It was summer-time, but the river voyage was pleasant. The flood waters had not receded, and on either side the river were billabongs and vast areas of swampy land. Bird life was abundant. Like gray shadows, thousands of Marsh Terns skimmed low over the water, dived, or revelled in the sunshine above the tree-tops. Ibises and Herons patrolled the flood-lands, and Black Swans

cruised around reedbeds, where their nests were concealed.

Kulkyne, a cattle station, was my headquarters, and when the steamer dropped me at the landing I received an Australian welcome from Mr. C. Thompson, the manager, and other station folk. For several days I rambled around the homestead with camera and field-glasses, and every hour was crowded with interest. Numbers of birds were nesting on a small island opposite the homestead. The Station Creek flowed along one side, junctioning with a large billabong at the eastern end of the long flake of slightly elevated land, which was shaped like a boomerang. Crested Pigeons' nests were found on the islet, built near the ground in dense, prickly bushes; Wood Swallows, Parrots, and other birds were also rearing broods.

Beneath a straggling clump of boxthorn was the bower of a pair of Spotted Bower-Birds [*Chlamydera maculata*]. It was neatly and strongly built. At either end was a collection of bright objects—bleached bones, pieces of weather-worn glass, green and blue, some blue feathers, fresh glossy leaves, a few red berries, a bit of perforated zinc, and other odds and ends that the birds had gathered from far and near. Conspicuous among the Bower-Birds' treasures were five glass bottle stoppers and a big pellet of lead.

Through and around their bower the builders run, tossing about the bones and other objects, and evidently delighting in the play. Bower-Birds are persecuted by settlers in the fruit-growing areas along the Murray, for they are alleged to be destructive in the orchards. The evidence is strong, but it is sad to hear of hundreds of these wonderful birds being shot. Unless they are afforded strict protection, I fear that the species will become extinct in the near future; indeed, this fate threatens several other beautiful and interesting Mallee birds.

The Murray banks were thickly populated by aborigines in the early days, when the white men came; but all the tribes have disappeared. One rarely sees a black face along the river now. Yet there are



A "CANOE" TREE.

many relics of the lost tribes, and some of these are on Kulkyne. The burial place of the Kulkyne blacks (there are only two living now) is a big sand dune, which is made an island by a creek and the river. Perchance thousands of aborigines, men, women and children, are buried in the sand. There are remains of rude structures that once marked the graves. Logs

were placed, in the shape of a tent, over the dead, and on them were hung fishing nets, and, in later times, blankets that they had used in life. Before the settlers' advent the blacks, apparently, piled logs above the graves, and buried with the bodies stone axes and other primitive implements.

Many old trees on the station bear marks of stone axes, where Opossums' or Parrots' nests were cut out



THE ISLE OF THE DEAD, KULKYNE.

by the natives. And, here and there, one sees a great Eucalypt, its gaunt gray limbs outstretched, from which bark was stripped for a canoe. On the bank of Chalka Creek, at the time of my visit, an ancient bark canoe was rotting under some bushes. I made a short voyage in it, and learned to admire the skill of the aborigines, who launched such frail craft on the Murray. It requires a thorough knowledge of the art of balancing to keep a bark canoe afloat, even on still water.

Lake Cantalla lies five miles, by water, from the homestead. Accompanied by the station manager and

his nephew, a sturdy boy, I made the trip in a small flat-bottomed boat. The craft was heavy laden, and once or twice, when crossing the current or rounding a bend where the water swirled against snags, it nearly capsized. Down Station Creek we paddled, across a billabong, and on to the Murray. For a



ABORIGINES' BARK CANOE.

mile, before we gained the little creek that links Cantalla to the river, we voyaged among giant gum trees in a billabong, startling Black Duck [*Anas superciliosa*], Grey Teal [*Nettion gibberifrons*], Pink-eared Ducks [*Malacorhynchus membranaceus*], Pelicans, Ibises, White-fronted Herons, Night Herons, and other birds during the passage. The Black Ducks and Grey Teal had broods, and when the boat came near them the ducklings scattered in all directions. There was a log in the way as one brood sought safety, and, one by one, nine little birds steeply chased over the obstacle.

Paddling quietly up the creek, we saw many charming pictures of wild bird life. The peace of this stream is rarely troubled by man, and the birds were nesting in safety. On the banks, thousands of White Cockatoos [*Cacatua galerita*] were feeding, and occasionally, as our boat glided past a tall tree, a pair flew screeching overhead. The Cockatoos' nests were in hollows, from fifty to ninety feet above the water, and the fledglings were safe from all enemies except Monitor Lizards ("Goannas") and snakes.

When the "flattie" shot into the lake, which was studded with dead gum trees and clumps of Lignum, there was a sound of whirring wings, and in a moment the air was thronged with wildfowl. Coots darted into the Lignum, Black-tailed Native Hens rushed, with pattering feet, over the surface of the water, and Grebes slipped from their nests and dived. Our first discovery was the nest, in a hollow stump, of a pair of Pink-eared Ducks. The birds were quietly swimming over one hundred yards from the stump; their secret was betrayed by a gray feather caught on a splinter of bark. Later, other nests of the species were found, all being in hollows, with the eggs buried in down.

Nests of the Coot and the Black-tailed Native Hen were hidden in the Lignum, and the nursery of a pair of Black Swans, containing six large greenish-coloured eggs, was seen beneath the branches of a gum tree near the middle of the lake. Grebes were diving all around us, and nests of the Hoary-headed species [*Podiceps poliocephalus*] were discovered, moored to Lignum stems. After a long search, we also found a nest of the Crested Grebe [*Podiceps australis*], containing four eggs. Before leaving their nests, the Grebes scattered water weeds over the eggs.

A big gum tree, about fifty yards from the shore, presented a spectacle of great interest. The branches were laden with nests of the Pied Cormorant

[*Phalacrocorax hypoleucus*], the Little Pied Cormorant [*P. melanoleucus*], and the Little Black Cormorant [*P. sulcirostris*]. Among the highest branches there were several nests of the Australian Darter or Snake-Bird [*Plotus novæ-hollandiæ*]. As we approached the rookery, the birds rose in a cloud, and for a minute circled over the tree, then, each species forming a separate flock, they flew to the other side of the lake. Soon after we left the tree the birds returned, and settled, with ruffled feelings no doubt, among their nests again.

Early in the afternoon, we landed on an islet. While the billy boiled, I started to place fresh plates in the dark-slides. But the mosquitoes were so numerous and voracious that I was compelled to suspend operations until my companions had lit a score of gumleaf fires. Encircled by fires and enveloped in pungent smoke, I was able to keep my hands in the changing-bag with impunity. But the mosquitoes were lurking just outside the charmed circle, and we were thankful to leave the islet after a hasty meal.

We cruised about the lake till sundown, when the water was patterned with purple shadows and flushed with scarlet and gold. The wind began to rise, clouds gathered in the west, and as we paddled down Cantalla Creek the signs of storm multiplied. But my memory of the Mallee lake is serene and beautiful: sunlit water, gray gum trees, and a host of happy wild birds.

CHAPTER V.

THROUGH THE BIG SWAMPS

MY first experience of wading was gained long ago, at King Swamp, near Melbourne. Three ardent ornithologists planned a trip, hoping to collect eggs of the Coot [*Fulica australis*], the Reed-Warbler [*Acrocephalus australis*] and the Grass-Bird [*Megalurus gramineus*], and persuaded me to accompany them. We drove from the nearest railway station to the broad sheet of water, which lay in a hollow surrounded by cultivated land. Donning old clothes and heavy-soled boots, we entered the cold water and started to explore the reed beds, which were dotted about like islets. Soft black mud sucked at our feet, pollen from flowering rushes filled our nostrils, and around our heads midges danced in millions. Every few minutes one of us stepped into a deep hole and water rose to the armpits. These mishaps were taken as part of the game, and we did not worry over the minor discomforts.

The reeds were crowded with Warblers, which sang blithely, and numbers of their pannier-shaped nests were found, fastened to reed stems. Nests of the Grass-Bird were not so numerous. One, among the rushes, contained a full clutch of four eggs, of a pinkish-white colour, freckled with red-brown. The birds were rarely seen; they are shy, mysterious little creatures, and their mournful notes are in harmony with the lonely places where they nest. The Reed-Warbler's song is rich and sweet; one can listen to it for hours without tiring, whereas the Grass-Bird's monotone soon becomes wearisome. At King Swamp we heard the two species singing in chorus, and the effect was rather pleasing.

In a dense clump of reeds a Coot's nest, containing five eggs, was concealed—a platform of rushes raised a few inches above the water, with a dome of stems and leaves. A second nest discovered was empty, having, no doubt, been robbed by a Water Rat; for



AUSTRALIAN COOT'S NEST AND EGGS.

there were some fragments of eggshell, and it was too early for nestlings. Two nests of the Bald Coot [*Porphyrio melanonotus*], containing four and six eggs respectively, were located. Roundish-oval in shape, the eggs of this water bird are of a dull greenish or stone colour, blotched with crimson-lake, purple and pale gray.

Wading along a palisade of reeds, I was startled by a loud "plomp," and turning quickly, saw a big green frog swim away. We were well aware that

snakes infested the swamp, but had forgotten the fact in the excitement of nest-hunting; the frog had jumped from the reeds, probably to escape from a snake. One of my companions laughed at the incident, but shortly afterwards some slimy thing brushed across his legs, and he plunged forward. It is not unusual to see a venomous snake in a swamp, an unpleasant creature to encounter when one is at a disadvantage. A piece of fencing wire is the best weapon, as it cuts the water easily, but with a stick an effective blow cannot be delivered.

Towards sundown we emerged from the swamp, sorry-looking figures; muddy water dripped from our garments, and the "weed was on our knees." Clad in dry clothes again, we felt fit for the homeward journey. The Reed-Warblers were still singing as we drove away, and the sun was setting in a golden haze. King Swamp is only a memory; the water was drained from the hollow soon after our visit, and wheat grows now where of old the Coot dived for its dinner and Reed-Warblers sang.

* * * * *

Years after that day among the Reed-Warblers I had a more memorable experience, a cruise in a flattie through one of the vast Murray swamps in New South Wales.

Lake Boga, the centre from which I made excursions to swamps and lakes in the nesting season of 1912, is an interesting place. Boga is a fine sheet of water whose shores were frequented by aborigines, perhaps for thousands of years. Mr. A. C. Stone, during a residence of eighteen years at Lake Boga, gathered facts regarding the customs and manners of the Gourrmjanyuk (along edge of trees) tribe, which formed a distinct section of the Gnarryboluk nation, and I am indebted to him for the following notes. The last full-blood of the tribe, Hamilton Orr (Myarramin) was drowned in the lake owing to a squall capsizing

his boat, in March, 1896. Mr. Stone uttered the funeral oration, when the last of the Gourrmjanyuk tribe was buried in Lake Boga Cemetery. The chief camping ground of the tribe was around the site of Boga township, the different lake shores, and on to



KITCHEN MIDDEN, LAKE BOGA.

the banks of the Little Murray River (Barne Mille). In the olden time, according to tradition, this camping ground was occupied by the Buck (catfish) tribe.

In the vicinity of the township there are many kitchen middens, where the blacks prepared their meals. Exploring one of these mounds I found, among burnt earth and ashes, charred remains of

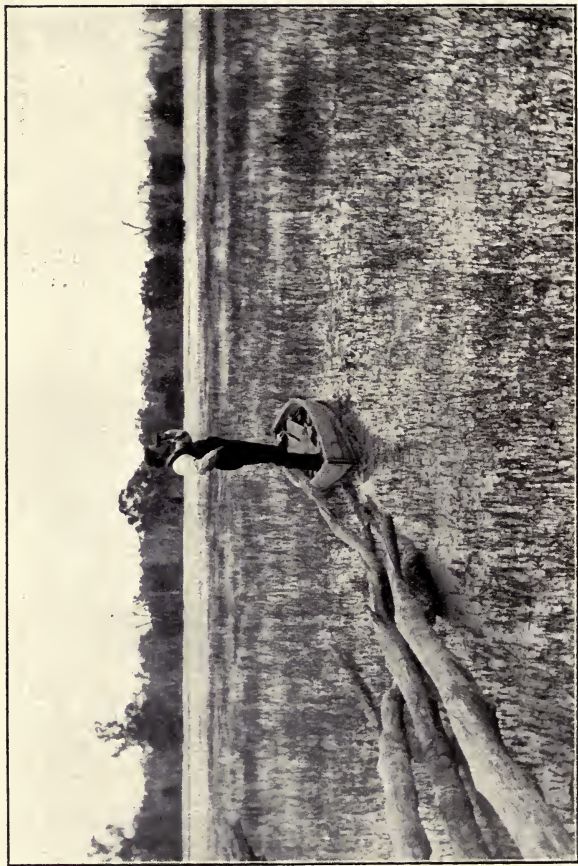
Wallaby bones, and fragments of freshwater mussel shells. One can imagine the scene, when dusky forms crouched around fires on the lake shore, feasting on molluscs, marsupials and birds. They hunted, loved and fought, those tribesmen, who are all dead now. Boga railway station stands where the "Battle of Blood" was lost and won. "All day long the noise of battle rolled," as warriors of the Tyntynder and Boga tribes attacked each other with waddies and spears, and blood flowed freely.

The lake natives, naturally, were expert fishermen and clever navigators; they cruised on the lake in bark canoes, hunting water-fowl and spearing and netting fishes. One of many legends regarding the lake is given by Mr. Stone in a paper on the "Aborigines of Lake Boga."* It is as follows:

"A long time ago (Nuil mea goon) there was a floating island on the waters of Lake Boga. The native idea was that it was formed of a mass of rushes and reeds, on which the duststorms had deposited a stratum of sand, and in which grass grew. One day a number of young men were upon the island, and the day being a warm one they spent a lot of time swimming. One youth, not being a good swimmer, became exhausted, and in danger of drowning. He was rescued by his friends, and, being then very cold and unconscious, a fire was made to warm him, after which they went back to camp. During the night a breeze sprang up and fanned the embers into a blaze, with the result that the reeds and rushes speedily caught fire, and the island was totally destroyed."

My guide in swampland was Rob Roy Macgregor, an interesting companion, who rendered good service. We drove from Boga to the Murray River, crossing the Little Murray and Pental Island, a wearisome journey. Rob, however, related stories of the natives,

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WATCHING EGRETS.

which helped to pass the time. He said that the aborigines of old time were expert with the spear and boomerang. Black Swans were often killed on the wing. Thousands of birds were slaughtered, and vast quantities of their eggs taken for food. But the Swans have won the long fight; they flourish on river, lake and lagoon, while the natives have become as a tale that is told.

We reached the Little Murray early in the forenoon, to find bridge builders at work there. Pile-driving in the sun, when, in the shade, a thermometer registered 99 degrees, was not enviable labour, and one of the men, to whom I spoke, expressed free opinions of the weather, using forcible adjectives after the manner of many Bush workers. We were ferried across the river, vehicle, pony and all, and began the long drive to the big Murray. Pental Island did not leave a favourable impression. Far as the eye could range lay arid, wind-swept land, relieved only by some straggling bushes. We hoped to meet with Native Companions [*Antigone australasiana*], which nest in this desert region, but were disappointed. Clouds of fine, red dust, whipped up by the wind, powdered us from head to foot, and at times made breathing difficult. When we emerged from the dust zone, conditions improved, and an hour later we were among tall trees on the bank of the Murray.

A bearded, sun-burned man came from his riverside hut to greet us. He seemed glad to have company for awhile. After a chat, he rowed me across the river in one of his two boats, and I stepped ashore in New South Wales. Meanwhile, Macgregor, on the Victorian bank, prepared his flattie, which had not been used for some time, and was half-full of water. It seemed a frail craft to launch on the Murray, whose waters came swirling round a bend; but Rob weathered the current and hugged the bank for half a mile, landing at a point where I was waiting to

assist in pulling the flattie ashore. Dry weather had caused the swamp waters to recede, and the boat had to be dragged over a quarter of a mile through river gums. It was hard work. The little boat seemed to be weighted with lead, and we were glad to rest when, at length, it floated among water lilies. Traversing a narrow channel, we emerged on to a broad expanse of dark, still water, the heart of the swamp; a "lake" girdled by tall Eucalypts, instead of sloping banks. Near the centre the water was several feet in depth, and everywhere the surface was covered with aquatic plants. Millions of yellow lilies glowed in the sunlight, while here and there were clusters of green reeds, quivering like spears held by palsied hands. Beneath the surface was another world, jungles of roots and twining stems, inhabited by tiny creatures of many shapes and colours. There were Water Boatmen [*Rhynchota*], Water Beetles [*Dytiscidæ*], dragon-fly nymphs, Water Scorpions [*Nepa*], and a host of other forms. On the surface Pond-Skaters [*Gerris*] glided and cut figures with easy grace. The air teemed with dragon-flies, some with brown bodies, others clad in emerald, scarlet or sapphire mail. They were glorious to behold—a fleet of fairy aeroplanes manœuvring in the sun.

This lonely swamp, aglow with colours, was surely a place for youthful poets, an enchanted region for dreamers. The still water, whose colour was that of Homer's "wine-dark sea," reflected the sky and, gazing down, we saw "cloud-capped towers and gorgeous palaces." While Rob poled the flattie I rested, trailing a hand in the water, and letting Fancy roam. Here it was not hard to believe in fairies or the gossamer City of Dreams. And when two objects, like flakes of foam among the green rushes, shone ahead, the spell was unbroken for a minute. Then I gazed through the glasses, and cried, "Egrets!" The white birds, identified as *Herodias syrmatophorus* [*timorien-*



AMONG THE WATER LILIES.

sis], continued to feed quietly till the boat was within thirty yards of the rushes, then they rose from the water and flew over the trees beyond our ken.

Egrets have been ruthlessly hunted by emissaries of the plume trade till, in Australia and other lands, they have become rare. A few years ago a rookery in New South Wales was visited by plume hunters, who shot the nesting birds and left their offspring to perish miserably of starvation. Formerly thousands of Egrets nested among the Murray swamps, now few are seen.

Continuing the voyage, we caused commotion among the waterfowl. A Black Duck and a Grey Teal, each in charge of a brood, dived into the rushes, while a Coot paddled round the "corner." We were now near the trees, which, rank behind rank, rose from the water like brown pillars, supporting a dome of green leaves. There was a stir in the dark colonnades, and two Cormorants [*Phalacrocorax melanoleucus*] came flying into the light; others followed until there was a large number circling above the tree-tops. Poling gently, Rob guided the flattie into the shadows, choosing a channel which opened into a small basin encircled by trees. Looking up, we saw the rookery, hundreds of nests, which occupied most of the higher branches. Deserted by their parents, scores of dusky-brown chicks craned from their nurseries to watch us, in fear. Some, I thought, must topple over; but no accident of the kind occurred, and the nestlings continued to gaze down upon us.

None of the tenanted nests could be reached from the boat, and as we lacked a rope ladder and climbing irons, only general photographs of the rookery were obtained. Selecting a tree, which was fairly laden with nests, Rob steadied the flattie, while I fixed the camera tripod in the mud. My head was under the focussing-cloth when the boat shifted; I saved the camera, but for a minute my body was stretched over

the water at an acute angle. Before we left the rookery I had been in this undignified position half a dozen times. It is rather exciting, photographing from a flattie.

Near the Cormorants' rookery, on lofty branches, were several nests of the Night Heron [*Nycticorax caledonicus*], known to the Lake Boga blacks as Yapul-yapitch. Three of the beautiful birds rose from



ON A SWAMP ISLET: BOILING THE BILLY.

neighbouring boughs; but the nests contained neither eggs nor fledglings. We landed at noon on an islet, an acre or more of high land, and Rob soon had the billy dangling over a brushwood fire. Meanwhile, I turned over bits of bark around the bole of a big gum tree, in quest of specimens. The "bag" was meagre, consisting of a few beetles and a centipede. A brown spider, with great furry legs, was disturbed, and dodged into a crevice. A scorpion was killed near the stump I had chosen as a seat. Snakes,

if there were any, lay low. When flood waters from the Murray inundate the country for miles around, knolls and small areas of raised land form islets, on which snakes, rabbits and other animals take refuge. Trappers sometimes gather hundreds of rabbits from "flood islands." Before camping in such places it is wise to make tours of inspection, and evict or kill any venomous snakes discovered, lest, at night, they seek a share of one's blanket.

The afternoon was devoted to a general cruise. We poled the flattie along winding channels among the trees, over shallow places—sunlit glades in dry seasons—and through haunts of Coot and Heron. The spirit of the swamp must be a "dark lady," with finger ever at her lips, for the stillness was wonderful: "tingling silentness," broken rarely by the wandering cry of a bird. Wherever the sun's rays penetrated water lilies grew thickly, forming a carpet of gold. My guide was familiar with the swamp, and he could always give the bearings; whereas I lost all sense of direction after an hour's voyaging through the channels, which twisted and turned like paths in a maze. We dragged the boat over an acre of dry land to gain an arm of the swamp that seemed promising; but it was labour in vain, the water was too shallow for even a flat-bottomed craft.

The sun was now low in the west, and it was time to begin the return voyage. Again our boat threaded those tortuous channels, cutting across purple shadows, bumping into snags and flinging aside the water lilies in flakes of golden foam. Darkness was brooding over it when we emerged on to the "lake." The passage towards the river was swift and silent till the shadows were reached, when two pairs of arms were needed to get the boat through the weeds. Then came the laborious portage to the river bank, followed by ten minutes' paddling, and once more we stood on Victorian soil.

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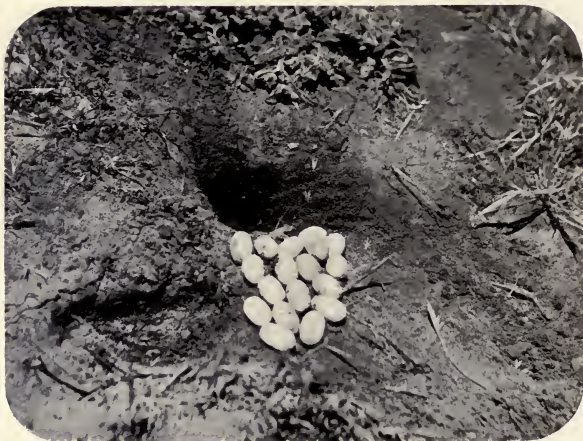
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With one of Macgregor's sons as guide, I spent a day rambling around Lake Boga. We visited some sand dunes a few miles from the township, where Bee-eaters [*Merops ornatus*] had nesting burrows. The birds, whose plumage is of many colours, brownish-green, orange-brown, blue, black and orange, were on guard. Every few moments one would leave its perch, a stem of a bush, and skim through the air, resembling, I thought, a flake from a rainbow. Bee-eaters, certainly, are insectivorous, but, despite their popular name, it is doubtful whether they destroy many bees.

In the low cliffs fronting the lake White-backed Swallows [*Cheramæca leucosternum*] were nesting. The colony was not large, perhaps thirty pairs of birds in all. A burrow examined was about two inches in diameter and two feet in length, the tunnel widening at the end into a little cave, with a carpet of dried grass, on which rested four white eggs, a dainty sight. I was peering into another burrow, when a Swallow darted out, brushing my face with its wings. Many of the birds were flitting around the cliff, while others skimmed over the lake, their white backs flashing in the sunlight.

Near the Swallow cliffs we paused to watch a Murray Tortoise [*Emydura macquariæ*] scraping a hole in the sand for its eggs. The lake was well stocked with these quaint little animals. I suppose that we saw, at least, two hundred in the course of an hour. They were congregated near the shore, where the water was shallow and warm. My companion, with unerring eyes, followed tracks which I scarce could see, and located several nests. One, fifty yards from the water, in dry soil, contained fifteen soft-shelled white eggs; another, in sand at the base of the cliff, held a baker's dozen. Schoolboys, I was told, sometimes gather Tortoise eggs in large numbers and pelt each other with them.

A young local naturalist invited me to join him in a trip to a small reedy swamp near Boga, promising nests of the Coot and the Allied Swamp Hawk [*Circus Gouldi*], with prospects of others. Of course, I accepted, and we drove to the swamp next morning. It seemed a mere pool after Bull Swamp; but it proved



BURROW AND EGGS OF MURRAY TORTOISE.

to be a case of "little and good." My friend warned me to keep an eye lifting, the swamp being noted as a haunt of big Black Snakes [*Pseudechis porphyriacus*]. A dead specimen hanging over a barbed-wire fence near by served to emphasise the warning words, but we did not see a living reptile that day. The reed beds, which my companion had previously explored, were visited, the first nest seen being that of a pair of Swamp Hawks. It contained four large white eggs. This Hawk, which frequents swamps, marshy

places, lakes and lagoons, usually flies low and in an indolent manner, as if there were no reason to hurry; but it is capable of smart wing work. The Swamp Hawk's food consists chiefly of small birds, reptiles and mice.



SWAMP HAWK'S NEST AND EGGS.

After inspecting the Coots' nest, which held a clutch of five fresh eggs, we moved on to seek that of a pair of White Ibises [*Ibis molucca*]. A platform of rushes and grass, slightly hollowed, the nest was hidden in a clump of reeds. There were three white, oval-shaped eggs, on which the female bird was sitting. She rose with a whirr of wings, and soared until she appeared no bigger than a pigeon, a white form floating in the blue. I was busy with the camera when a Bittern "boomed" from the reeds, not

ten yards away. A second time the hollow notes echoed across the water, like a challenge. "All right, my friend," I thought, "I'll have your secret before I leave this swamp." And I did. It was a long search, though, the nest being cleverly hidden, right in the centre of a reed bed. On the platform of inter-



BITTERN'S NEST AND EGGS.

woven rushes lay five beautiful olive-coloured eggs, a sight to make the eyes of any bird-lover shine. The Bittern [*Botaurus poiciloptilus*] is not rare, but little is known regarding its home-life. A nocturnal bird, frequenting lonely swamps and marshy places, it is not often seen. But many people have heard its booming notes, and ghost stories have been woven around them.

The nest of the Bittern was not the last discovery made in the swamp. The home of a pair of Musk-Ducks [*Biziura lobata*] was found. It was formed

of rushes, and lined with grass. There was also a dome of plant stems, so that the two large, greenish-coloured eggs were completely hidden.

Musk-Ducks are fairly abundant in sheltered bays, and on inland waters. Expert swimmers and divers, they are said to lack the power of flight; all



NEST (OPEN) AND EGGS OF MUSK DUCK.

observers are not in accord on the point. It is certain that the wings are used chiefly as paddles. Startle a Musk-Duck, and it flaps over the surface, churning up the water like a miniature paddle-steamer. For many years I have observed these birds on the sea near my home, and have yet to see one on the wing. The Musk-Duck derives its name from the fact that it is provided with an oil gland at the base of the tail from which a powerful, musky scent is diffused.

The semi-circular leathery appendage under the bill of the male bird is not a "musk-pouch," as many people, doubtless, believe. Like several other birds mentioned in this book, the Musk-Duck is an anomaly. In his "Handbook to the Birds of Australia," Gould writes thus of the genus *Biziura*, Leach:—

"A genus of which only a single species is known, and which is singularly different from every other member of the *Anatidæ*; so different, in fact, that I question if this be its natural situation; and although, like Bonaparte, I have placed it next to *Erismatura*, I believe its alliance to that form is but a seeming one. There is something about this extraordinary bird which reminds one of the Cormorants, yet no ornithologist would, I presume, associate it with those birds. . . . It is, in fact, a *Biziura* and nothing more, for it stands alone."

It was late in the afternoon when the Musk-Ducks' nest was found, and after exposing several plates we packed up the camera and waded ashore. The Bittern "boomed" again, and the reeds, stirred by a puff of wind, rustled softly. These rather mournful sounds alone were heard; there was never a Warbler to enliven the solitude with songs of "merry glee."

On the following day we visited Round Lake, not far from Boga, hoping to find nests of the Crested-Grebe [*Podiceps australis*]. This species is noted for the tippet or frill, which is worn by both sexes during the breeding season. The nest is a kind of raft, composed of aquatic plants, and anchored among rushes, a mass of lily leaves, or other vegetation. Twenty or more nests had been noted on Round Lake in the previous season, but we did not see one on this occasion, the birds having sought some other breeding place. I saw a number of the birds on Lake Boga, which in former years was often covered with water-fowl.

We had better luck among the land birds at Round Lake. Nests of the Chestnut-eared Finch [*Tæniopygia castanotis*] were discovered in the boxthorn bushes that formed dense thickets near the water. They were guarded by sharp thorns, and it was impossible to examine one until some branches had been cut away. The Finches darted in and out of the bushes, dodging the thorns with ease; in fact, they did not seem even to look where they were going. A pair of White-winged Wren-Warblers [*Malurus cyanotus*] had built in a small boxthorn, but instead of being concealed near the centre of the bush, the nest was suspended among outer twigs: it swayed gently in its bower of glossy, green leaves, decked in coral-red berries. In bushes growing along the railway, near Boga, other nests of this Wren-Warbler were found. Heavy rain had fallen a few days previously, and three of the nests contained dead fledglings.

On the way home my companion spoke of his pets, and presently introduced me to one, a young Fox, which followed him like a dog, and obeyed commands. A Boga boy was also a Fox lover—at least, he had two cubs, which were liberated on the lake shore for my pleasure. They declined to pose for a photograph. One, the male, ran to the water's edge, sniffed the air, then rejoined its mate. They played together prettily, rolling each other over on the sand, and snapping in make-believe anger. The play of animals is always interesting. I should not care to endorse all that has been stated in some "animal stories," but wild creatures, in infancy especially, appear to enjoy rough and tumble "games." On the plains Native Companions perform grotesque dances, probably for recreation. Numbers of the birds assemble and caper on "light fantastic toes," the scene reminding one of a blackfellows' corroboree.

CHAPTER VI.

EYRE'S PENINSULA

“CAMPING in the Desert” was the title originally proposed for this chapter; but the dictionary declares that a desert is “a waterless and treeless region,” and the southern portion of Eyre’s Peninsula, South Australia, possesses both water and trees. There are areas of barren land, it is true, and desert plants, pioneers from the north, grow freely in places; but one must travel far from the coast to reach the real desert, which is the highway to the “Dead Heart of Australia.” Large areas of the Peninsula have been spoiled for the naturalist, farmers having transformed the wilderness into wheatfields.

It was in October, 1909, that the Australasian Ornithologists’ Union held a working camp out on Eyre’s Peninsula. The party numbered twenty-six, including the cook, who was not the least important member, as it proved. There were botanists and entomologists, as well as bird students, and a rich harvest of facts regarding the fauna and flora of the region was gathered. One of the chief objects of the expedition was to compile a list of birds, with a view of ascertaining the extent to which southern and western forms intermingle on the Peninsula; there is no distinct line of division. No fewer than 103 species were identified, seventy-six land birds and twenty-seven waders and swimmers.

The main camp was formed at Warunda, in the district of Wanilla, some twenty-eight miles from Port Lincoln, and midway between the Koppio Range and the Broom country. The site, selected by Captain S. A. White, one of our leaders, was admirable, for

the camp was close to permanent water, and within easy reach of the railway line. Two rows of tents, shaded by Sugar Gums [*Eucalyptus*] formed a pleasant avenue, at the head of which floated the Union Jack, tied to a bough. A special train conveyed us from Port Lincoln. It stopped, not at a station, but in the wilderness, and the truck-load of baggage was dumped beside the rails. The wisdom of selecting



SUGAR GUM CAMP.

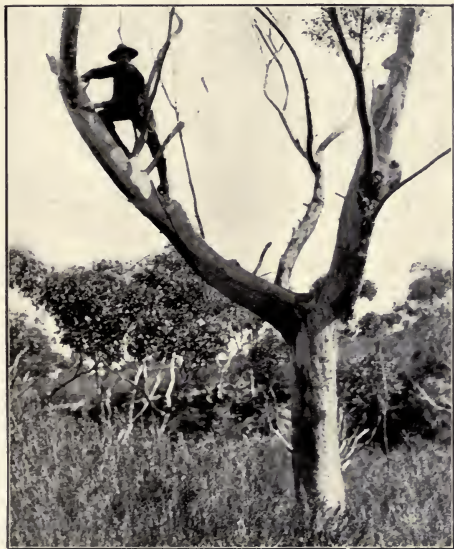
a camping ground near the railway now became apparent. Tents, boxes, portmanteaux, cameras, and all the other miscellaneous goods had to be transported by human labour alone; there was not even a wheelbarrow to lighten the work, and our backs and arms ached after a dozen journeys to and from the camp and the railway. It was fatigue duty in earnest, and afterwards came tent-pitching. However, the camp was shipshape by 9 p.m., when we rested, weary but happy.

It was a night of stars, and some of us strolled a mile or two from camp to smoke a pipe in peace.

The wind was asleep, and the cool, starlit silence was soothing after the long day's work. Through the trees the camp lights glimmered for awhile, then, one by one, they disappeared. But a dying fire in the avenue guided us back to the tents. *Reveille* sounded at six o'clock next morning, and we tumbled out of warm blankets into the crisp air, rubbing sleep from our eyes. Cook was already busy at the camp fire, and another early riser, towel over shoulder, was hastening to the creek. The sun was smiling, and a thousand birds were singing in the dawn: a morning to raise a pessimist's spirits, and cause ordinary cheerful folk to bubble over with happiness. Breakfast over, we divided into small parties, and started to explore the neighbourhood. Botanists, laden with cameras, press-books and vasculums, went towards the flowery region, accompanied by an entomologist; bird-lovers went east and west, deep into the scrub. All returned to camp, well pleased, at noon.

Close to the camp nests of the Many-coloured Parrot [*Psephotus multicolor*] and the Yellow-banded or Port Lincoln Parrot [*Barnardius zonarius*] were found, in hollow limbs of gum trees. The former species wears a brilliant livery of scarlet, yellow, blue and green. The Port Lincoln Parrot, green and yellow, with black head and a broad yellow collar round the nape, is a popular cage bird, and consequently is decreasing in numbers. Thousands have been captured in the Port Lincoln District and sent to Adelaide. The Blue-bellied Lorikeet [*Trichoglossus swainsoni*] was the common parrot at Warunda. The birds were constantly seen and heard, and many nests were discovered in the Sugar Gums, which provided innumerable cosy hollows. There was no housing problem here; each pair of happy birds could go into residence without trouble. The Lorikeets formed a noisy community; from dawn till dusk they chattered and screeched, and, though we admired their beauty,

their unmusical cries became wearisome. Purple-crowned Lorikeets [*Glossopsitta porphyrocephala*] also were nesting in the Sugar Gums.



AT THE NEST OF THE MANY-COLOURED PARROT

The botanists' list included Mallee Eucalypts, Casuarinas, Hakeas, and a number of other plants. Along the creek Acacias were abundant, small bushes mostly, aglow with yellow bloom. A red-flowered Grevillea [*G. aspera*] was noted, and fine specimens of *Hibiscus Wrayæ*, with purple blossoms, were growing on the flats. Towards the ranges *Hibbertia stricta* covered acres of ground, the flowers forming a golden carpet. Near the camp were many clumps of Spinifex [*Troidea irritans*], surmounted

by fawn-coloured plumes. This grass was an obstacle to the early explorers. Each clump is like a cluster of lancets, and if one is foolish enough to plunge a hand into it, he will suffer severely. Some distance from the creek groves of Grass-trees [*Xanthorrhœa semiplana*] were observed; many of the trees had flower-spikes nearly ten feet in height. "Blackboy" is one of the Bush names for this curious plant, whose gum has commercial value.

Of course, we did not discover everything on the first day, though a general idea of the fauna and flora in the vicinity of the camp was obtained; and around a big log fire at night results and prospects were discussed. For a week the daily excursions, near and far, continued, and all the time our store of knowledge increased. Several places became favourite resorts, one being a small lagoon about a mile from camp. The water was surrounded by Bottle Brush [*Callistemon coccineus*] and other shrubs. The former plants were in bloom, and from a distance the red flowers resembled tongues of flame leaping from the green foliage. On the lagoon we saw several Freckled Ducks [*Stictonetta nævosa*], but they were shy, and it was impossible to obtain a photograph, except at long range. In a dead bush, a few feet from the shore, a pair of Black-and-White Fantails had their nest, which contained three fledglings. Resenting the attention of naturalists, these foolish little birds clambered on to the rim of the nest, and endeavoured to fly, the result being that we had to rescue two from the water, while the third was saved by a cluster of twigs. The parent-birds were greatly excited. When the nest was visited next day it was empty; evidently the brood had been taken safely to dry land, for there was no sign of a tragedy.

We were much interested in the domestic affairs of a pair of Tawny Frogmouths [*Podargus strigoides*],



LAGOON AT WARUNDA, EYRE'S PENINSULA.

whose nest was built in the fork of a Sugar Gum about a mile from the creek. The female bird was brooding on two eggs. She remained tranquil, though inquisitive eyes were focussed upon her daily for a week. Even when two photographers climbed



CLIMBING TO A TAWNY FROGMOUTH'S NEST
(Bird's Head is just below X).

to the nest, the faithful bird declined to leave until a hand touched her.

The *Podargus* is an excellent example of protective mimicry, both in form and colour. The plumage—rich browns and grays predominate—harmonises with the bird's usual surroundings. And, instead of perching on a branch in the ordinary manner of

birds, the Frogmouth crouches along it, with the head stretched rigidly in line with the body. It is easy to mistake one, when in this characteristic attitude, for a portion of the bough on which it is resting. The birds appear to know that, while they remain still, they are likely to escape notice, and allow one to pass right beneath them without moving themselves. The nest of the Frogmouth is a frail platform of twigs, built in a fork, or at the end of a broken bough. Two eggs form the clutch. The Frogmouth is popularly known as the "Mopoke," owing to the widespread belief that it utters the weird call, "more pork," heard so frequently in the Bush on still nights. The Boobook Owl [*Ninox boobook*], I think, is the true "Mopoke," though the Frogmouth also has a "more pork" call. This is one of the vexed questions of Australian ornithology, which has been debated scores of times.

Rambling through the scrub, we saw many Termites' mounds, miniature pyramids, which teemed with industrious insects. In the tropical North "white ants" build enormous nests, but none of the mounds seen on Eyre's Peninsula was above a few feet in height. Termites may interest the naturalist, but they are detested by people who live in districts where they abound. Fence posts, telegraph poles, and the woodwork of houses are attacked by the pests, whose industry sometimes causes structures to collapse. I camped once in a wooden cottage, the walls of which were crumbling as a result of invasion by Termites. In Victoria "white ants" generally select a hollow tree or stump, and build therein their termitarium of clay.

None of us is likely to forget the mosquitoes of Warunda. The terrible insects attacked in millions, and war against them was useless. During the day their attentions were endurable, but after dark they became so fierce and persistent that luckless persons without nets had little peace. Smoke from the camp

fire afforded some protection, but in the tents this was withdrawn, and the insects triumphed. On warm, calm nights, the pests were most active, and it was scarcely possible to obtain rest. If, after a long day in the scrub, one slept from very weariness, he



TERMITES' ("WHITE ANTS") MOUND.

awoke at dawn to find face, neck and hands covered with red lumps, which itched for hours. Wood-cutting by the creek was a duty that nobody sought. One's hands were necessarily engaged, and mosquitoes took full advantage of the opportunity. We had many regrets on leaving Warunda, but these were leavened by the blissful thought that the mosquitoes would no longer be able to feast on our blood.

Our leaders planned an excursion to Coffin's Bay, at the south-eastern end of the Great Australian Bight, and it was my good fortune to be a member of the small party selected for the journey, which resulted in a number of species being added to our list of birds. An evening was devoted to the study of maps; we pored over them in the light of a swinging lantern, killing mosquitoes mechanically, and brushing away moths and beetles in a manner that would have disgusted our entomologist, had he been present. Meanwhile, the organiser had visited the nearest farmer, and hired a buckboard vehicle and two Mallee brumbies. He also engaged a driver. We began the journey early next morning. Our companions, who were to remain in camp, assembled to give us a farewell cheer, and we felt as if we were bound on a mission of great moment. The vehicle was built for six persons at most, and, with the driver, we were eight. Besides, room had to be found for cameras, guns and provision boxes. It was a very tight squeeze indeed, and we took it in turn to ride on the step. Occasionally, owing to the state of the road, it became necessary for all except the driver to alight. We did not mind this, for after an hour spent above jolting wheels, walking was restful; besides, we were able to glance at birds in the scrub, which would otherwise have escaped notice. Our driver was a cheerful man, with large, freckled face, framed in sandy whiskers. Nothing perturbed him, but he chuckled once or twice when some long word, *Cinclorhamphus*, for instance, tickled his ears. Naturalists were "queer chaps" in his philosophy.

We had not covered five miles when one of the horses became restive, kicked viciously, and broke a swing bar. The driver was in no wise disconcerted; he jumped down, repaired the damage as he best could, and resumed the "box seat," smiling genially. An hour later, as a protest against the weight imposed upon it, one of the axle springs snapped—a

clean break. This mishap appeared to us to be serious, but our driver showed no great concern. Luckily, a piece of fencing wire was found by the roadside, and with it and a wedge of Mallee wood the broken spring was roughly spliced. The interrupted journey was resumed, but progress was slow. The vehicle had a list to port, and those who occupied seats on that side endured a double share of bumps. We were all anxious for a spell afoot, and leaped to the ground with alacrity when the horses stopped near a cottage on a pleasant rise. This was the home of a solitary man, a scholar, who had come from England to dwell in the wilderness. He seemed glad to meet men with whom he could converse on subjects not even remotely connected with crops and the weather. Invited to dinner, we entered the cottage, to see books and pictures that suggested a highly cultured mind in their owner. A man's bookshelf is generally an index to his character. Our new friend prepared an excellent meal, and we did it justice. Promising to pay a longer visit on our return to camp, we said good-bye to our host, still smiling at one of his good stories, which was told, not over walnuts and wine, but pannikins of billy tea.

The driver had a hazy notion of distance. Asked how far it was to some hill or farm, he would answer, "About a quarter of a mile." When we were two miles from Lake Wangary, someone said, "How far, driver?" and "About a quarter of a mile" was the instant response. Perhaps this was the man's little joke, for his dry laugh mingled with our own merriment. At Wangary we halted for the night, engaging rooms at the comfortable hotel facing the coach road. Next morning we drove to Horse Peninsula, calling en route at a farm house to deliver a letter of introduction. The farmer proved a good friend. As a beginning, he presented a member of the party with a fine fossil, portion of the jaw bone,

with teeth attached, of a *Diprotodon*. Complete skeletons of this extinct giant marsupial were discovered some years ago, embedded in the mud of a morass, in South Australia.

Mount Dutton Bay was reached before noon, and we devoted an hour to rambling in the vicinity of the jetty, where a brig was discharging cargo. Among the rocks we found numbers of Stump-tailed Lizards [*Trachysaurus rugosus*], sluggish reptiles, which were



STUMP - TAILED LIZARD.

easily captured. Its long, thick body, short, flattened tail, and stumpy limbs indicate that this lizard was not designed by nature for activity; but it is a brave little creature, and faces a foe with open mouth. Like members of the genus *Tiliqua*, the Stump-tailed Lizard frequently attacks and kills snakes. It is not, perhaps, such a hero as Kipling's Rikki-tikki-tavi, the Mongoose, but once its jaws close on the flesh of a serpent, it clings with bulldog tenacity till one or other of the combatants dies.

Nothing of special interest was seen during the drive from the place of lizards to Horse Peninsula. A narrow point of land jutting into Port Douglas, the Peninsula forms portion of a sheep run; long

ago it was a favourite camping ground of aborigines. Tea-tree and other plants cover a large portion of the land; but little time was spent in the scrub, the object of our visit being to examine the sand dunes,



ABORIGINES' BURIAL PLACE.

and gather relics of the lost tribes. The wind had scooped valleys among the great dunes, and disinterred the nameless dead. On the surface of the white sand portions of human skeletons were scattered, skulls, limb bones, vertebræ and ribs. It looked as though some sacrilegious person had played skittles with these poor relics of the men of old time. Sun, wind and rain had rendered most of the remains

useless for museum purposes; when I lifted a skull it crumbled to white powder in my hands. We gathered many granite pounding-stones, quartz scrapers, and other primitive implements. One skeleton discovered rested in a depression, with pounding stones ranged about it, one at the head, another at the feet, and several on either side. Delving in the sand was not very fruitful, but had we been able to spend a few days among the dunes, interesting discoveries would surely have been made. Standing in the midst of this untended graveyard of a people whose name also has perished, I remembered a passage in Sir Thomas Browne's "Hydriotaphia":—

"But who knows the fate of his bones, or how often he is to be buried? Who hath the oracle of his ashes, or whither they are to be scattered?"

Further along the coast a series of dilapidated stone-walled ponds was discovered. Perchance the very natives whose bones we had seen on the dunes made these traps, into which fish were driven from the sea, and speared. After exploring Horse Peninsula, we followed the main coast line, along the cliffs. The geologists were busy with their hammers, tapping specimens from the rocks, until their canvas satchels were filled. We rested at a spot of mournful historic interest, where the cliff formed a headland rising from a mass of jagged rocks, on which the waves broke in a smother of foam. The story is told that, in the early days, fifty or more of the wretched natives, who had speared some sheep, were driven by armed settlers on to this cliff, and forced over the edge to perish. There are dark pages in Australian history.

Returning to Horse Peninsula, where the vehicle had been left in charge of the driver, we packed up our collections, and in the cool of the evening drove to Lake Wangary.

There was a day to spare before taking the track that led to Sugar Gum Camp, and it was devoted to a trip to Kellidie Bay. We travelled in comfort, for our farmer-friend made room for three in his buggy, and the back-blocks vehicle, with the broken spring, carried a comparatively light load. As we drove along the road near the sea, Rock-Parrots [*Euphema petrophila*] rose from long grass beyond the wheel tracks and flew to the nearest trees, where they perched in rows. Two birds were shot for identification; on the wing they resembled the Grass-Parrot [*E. elegans*]. I deplored this slaughter, but it was deemed necessary. A search was made for nests among the scattered rocks, but none was found. However, when we reached Coffin's Bay Station homestead, which overlooks Kellidie Bay, we were informed that many birds were breeding on Goat Island, which lay about "a quarter of a mile" from the shore, near the outlet to the sea. Boats were placed at our disposal, and we rowed across to the islet. As the boats drew near, somebody fired a gun, and a minute later the air was thronged with birds. From behind the *Mesembryanthemum*, which draped the rock ledges, Rock-Parrots appeared in hundreds; from dark nesting places into the light they came, alarmed by the report that echoed around their retreat. Beautiful they looked, with golden-green plumage shimmering in the sun. *Petrophila*—the rock-lover—was ever a bird more happily named? Some of us had not previously seen these birds alive, in their native haunt, and were enchanted when they came flying over our heads.

Goat Island is less than two acres in extent. Its rugged shores, rising steeply from the water, are honeycombed, the sea having fretted the soft rock (dune limestone) for countless centuries. The vegetation on the flat surface of the isle consists chiefly of small, wiry shrubs and grasses, while, as



NEST AND EGGS OF ROCK - PARROT.

already stated, Pig-faced Weed [*Mesembryanthemum*] screens the rocky caves from the sun.

The islet was eagerly explored, and under little piles of stones, as well as in hollows along the cliffs, we found many nests of the Rock-Parrots. Frequently, when one stooped to examine a natural cairn, or overturn a boulder, a bird was flushed. Along the cliffs the nests were difficult to locate. In some cases the nest cavity was at the end of a burrow three feet or more in length. On the crown of the islet, however, eggs were found in slight depressions, spanned by flat stones. One nest, a few feet above sea-level, between two vertical rocks, contained five birds in the down. Evidently the nesting season was at its meridian. Four eggs appeared to form the average clutch, but several nests each contained three eggs that were heavily incubated. Though its parents are beautiful, the young Rock-Parrot is not a pretty object: the down is pale yellowish-grey. Writing of this species, Gould stated that he received specimens from Port Lincoln, but that the principal habitat of the bird appeared to be the Western coast, on Rottnest and other islands, near Swan River, West Australia. It is probable that Gould's specimens came from Kellidie Bay, which is not a great distance from Port Lincoln. Gould also observed that the Rock-Parrot bred in holes of the most precipitous cliffs, showing a preference for those which faced the water and were most difficult of access. Observations on Goat Island confirm the latter part of the statement, for there, in the majority of cases, nests were among hollows in the cliffs, and some were inaccessible.

The trip to the West coast of the Peninsula was intensely interesting to ourselves, and beneficial to bird-life. Representations were made to the proper authorities, with the result that the Rock-Parrots were placed on the list of species that are protected

all the year, while islands in Coffin's Bay were proclaimed bird sanctuaries.

Returning to the main camp, we found that other members of the party had done good work in the Eastern country. And it should be chronicled that several followed in our tracks to the West coast, and had interesting experiences. Two or three quiet days were spent at Warunda, and then we prepared to fold up our tents. On the night before the camp was broken up we gave a farewell concert to the settlers, with whom we had become friendly. Some twenty persons, young and old, assembled, and occupied log seats ranged in a semi-circle before a big camp fire. All the performers were amateurs, of course, and only three of the "company" possessed good voices; but the Peninsula folk seemed to enjoy the songs, and joined heartily in every chorus. We were further encouraged by encores.

The morning of farewell was dismal. Rain fell steadily, and Sugar Gum Avenue, where rows of white tents had glimmered in sunshine on the previous day, was damp and desolate. But the sky cleared later, and during the rail journey to Port Lincoln we looked from open windows at the unclouded blue, and breathed air which had all the freshness and fragrance that delighted us on the first morning in camp.

CHAPTER VII.

WHERE THE PELICAN BUILDS

IN camp on Eyre's Peninsula I became acquainted with a South Australian ornithologist, whose descriptions of the Coorong and its wild life made me long to visit that strange lake. Nearly two years elapsed before an opportunity came. In June, 1911, my doctor advised a holiday in the Southern State, and I went to Adelaide. After three days in the city and as many weeks at Mount Lofty, I wearied of the "rest cure." Leisurely rambles through the hills in the season of mists were pleasant enough, but birds were scarce, and I am never long content without the music of wild wings. Where to seek it was the problem. I remembered the Coorong, and decided to go there, trusting to luck.

Coorong Lake is really an arm of the sea, opening in the south-east part of Lake Alexandrina, and running parallel with the coast in a south-easterly direction for many miles. A rough road skirts one shore, and the coastwise bank is formed of huge sand dunes. The maximum width of the Coorong is about two miles. In stormy weather the lake becomes almost as perilous as the sea for small craft, and more than one has been lost there. In no place very deep, the water becomes shallow towards the upper reaches, and the lake ends among swamps.

Accompanied by my wife, I travelled by train from Adelaide to Milang, a township on Lake Alexandrina. Near the jetty there are reed beds, and at low tide acres of slimy black mud are exposed to the sun. These desolate flats form an insubstantial highway to the reeds. Several hours were devoted

to stalking birds on the flats, but they were too wary to come within range of the camera. White-fronted Herons [*Notophox novæ-hollandiæ*] and Bald-Coots [*Porphyrio melanonotus*] were abundant, but it was too early for nests, and, therefore, not worth my while to explore the reed beds. The Coots looked splendid as they moved easily over the mud, printing quaint patterns with their feet. The sun shone on their blue breasts and red legs and bills. The Herons, clad in dark gray, with white cravats, were like Quakers among the gay *Porphyrios*.

Lake Alexandrina, through which the Murray River flows to the open sea, is navigated by a small paddle steamer. The voyage to Meningie, on Lake Albert, is tedious for passengers who are not interested in bird-life. We made the trip on a cold, gray day. At Narrung, a tiny port, the steamer stopped for an hour to discharge merchandise and take aboard live-stock. Several young natives, half-castes from the Mission Station in the vicinity, were at the jetty, and nearby stood a wurlie, which we inspected with interest. A gin answered my summons; she was a buxom woman of middle-age, neatly dressed in the gipsy style—blue print blouse and skirt, and a coloured handkerchief tied over the head. A bright-eyed piccaninny clung to her skirt. She spoke good English, and answered our questions willingly. But the bare-legged boy was shy; he whimpered and dodged behind his mother when she told him not to be silly, but held out a little black hand when the white woman offered a new penny. We paid two shillings for a basket woven of reed stems, and then asked the gin whether we might peep inside her dwelling. She demurred for awhile, then raised a loose bag, which formed the door. We did not enter; a quick glance round was sufficient. Sacks covered the earth floor, a pile of blankets occupied one side of the wurlie, boxes and bundles of reeds were scattered around,

and a Black Swan, evidently destined for the cooking pot, was tethered in a corner. An Afghan hawker also had his home near the jetty; it was more modern, and less picturesque, than the wurlie, a two-roomed shanty, with the saving grace of a flower plot be-



BLACKS' WURLIE, THE COORONG.

neath each window. Portion of the roof consisted of flattened kerosene tins, yellow-brown with rust.

Returning to the boat, we found the lower deck aft crowded with pigs and cattle—penned apart, of course—which protested loudly against the treatment they had received in being driven aboard. These new passengers were not pleasant company, so we climbed to the upper deck and made friends with the skipper, while the steamer passed through "The

Narrows," a reedy channel which links Lake Alexandrina to Lake Albert. Several great birds came into view once, when the vessel was close to the shore, and were quickly identified as Ostriches. The skipper stated that there were hundreds of these birds on two of the lake stations, and we were destined to see more of them. But the most interesting picture of wild Nature vouchsafed us in the course of the voyage was that of an Emu, bending to drink from a pool near the beach.

We reached Meningie at dusk. The lights of the little township looked friendly, and we were glad to be among them, for the lake voyage had chilled us and sharpened our appetites. After dinner we sat by a fire of Mallee roots in the hotel parlour, and studied a map of the Coorong. The host was interested in our plans, and gave valuable advice. Later, I sallied out to meet a fisherman, with a view to hiring his motor-launch. But the lucky fellow said that he was earning from £15 to £20 a week, it being the Murray Cod season, and, unless I could pay him more, he could not relinquish fishing. This was disconcerting, because the bird-life of the lake could not be properly studied without a boat. However, I hired from the hotelkeeper a light waggonette and pair of horses, purposing to drive along the Coorong and seek a craft at Woods Wells. A driver was engaged, and early next morning we left Meningie. The air was bleak, and, though muffled in great coats and rugs, we shivered. A few miles out two sundowners were seen crouched over a burning Grass-tree by the roadside. Rain had fallen overnight, and in many places the road was waterlogged. It was dreary driving through the Mallee, though some amusement was derived from the birds on the telegraph wires. Several Foxes were seen; one loped across the road a few yards in front of the horses, turning its head for a moment to gaze at us, inquisitively. The driver remarked that the

Coorong country was infested with Foxes, which took toll of lambs and poultry. At noon we called a halt for lunch. Bob soon had the billy boiling, and grilled some chops to a turn. It was a jolly meal that we ate under a She-oak tree.



THE COORONG.

We were now on the Coorong Road, and McGrath's Flat, the site of a station homestead, was reached at 2 p.m. Rain had fallen steadily for an hour, and the sky showed no sign of clearing. We drove to a grassy flat bordering the lake, and the billy was boiled once more, for there is nothing to equal tea when one is wet and cold. The wind moaned around a wurlie whose owners were away, and vicious little waves darted at a boat drawn up on the shore. We coveted the craft, and fervently wished that "Jemmy" had been more considerate than to leave home on this particular day. We met him a few days later, driving back from the township to his wurlie on the Coorong.

Shortly after our departure from McGrath's Flat, the rainclouds rolled away to the west, and in sunshine the lake revealed fresh beauties. The water was dark purple where cliffs cast shadows, green in the shallows, and azure in mid-stream. Islets, barren or covered with bushes, rugged headlands, and little bays appeared in succession as we followed the winding road. We attempted to cross the lake to the white dunes, wishing to gaze at the ocean. Waves thundered along the hidden beach, but the sound that reached us was a musical murmur. It was high tide, and, when we were only a few yards from the shore, water splashed into the vehicle. So Bob decided not to risk the ford, and we continued our journey on dry land. As the shadows mustered and skirmished with the light, the lake water became more beautiful—purple, green and blue were flushed with rose. Night came swiftly, and all the bright colours faded into cold blue-gray. Presently, as we swung round a bend, a light shone far ahead. At Woods Wells, a boundary rider, his wife and child occupied an old stone building on the headland, and we received a warm welcome. After tea, our driver and the station hand told tales of old times, when settlers were few and natives roamed freely all over the lake country. One story dealt with the wild deeds of a white man, who has become a legendary figure in Coorong history.

Before sunrise the boundary rider was astir. He returned for breakfast after visiting a dozen traps, dragging by the tail a big Fox. We had heard many of the red-furred raiders barking through the night. This morning the sky was clear, and we resumed our journey in pleasant sunshine, though there was still a nip in the air. Birds were singing blithely in the scrub, and, crossing a flat, the horses flushed numbers of Ground-Parrots [*Pezoporus formosus*] from the grass. Disturbed at breakfast, the birds alighted

again after flying only a few yards. Evidently they were not much alarmed. As they rose, the sun gleamed on green plumage, barred with yellow and black. Swamp-Hawks were numerous and bold; eleven were perched in one tree, but groups of two or three birds were usual. Several Hawks were flying



ON PELICAN ISLAND

lazily over the lake, close to the cliffs. We outspanned on Policeman's Point, a picturesque headland with a patch of scrub spreading down one slope to the water's edge. The boundary rider had galloped ahead to Salt Creek in search of a boat, and we awaited the result of his mission. While we sat quietly on a boulder, eagerly scanning the lake, a Fox emerged from the scrub and trotted towards us. He stopped once or twice and sniffed the air, but eventually passed within a dozen yards of our seat. Before disappearing he turned, looked at us intently, and

barked, as if in defiance. An hour after this incident we heard a faint splash of oars, and presently a boat shot into view. From the shore we had watched a fleet of white birds, each with huge beak slanting to its breast, cruising near Pelican Island, and the arrival of the boat was welcome.



PELICANS' HEADLESS BODIES, PELICAN ISLAND.

The boatman greeted us cheerily, and offered his services for the rest of the day. His craft was small and leaky, and with three persons aboard sunk until the combing was only a few inches above the water. We had to "trim," and Jim rowed so carefully that progress was slow. I baled every few minutes, for water flowed in steadily, and our feet were awash all the time. But we reached the island safely. The Pelicans had not awaited our advent; when the boat was a hundred yards away they rose with a clamour of beating wings, and in V-shaped formation flew towards the point. There were hundreds of nests on

the island, but none contained eggs or young birds. We were not much surprised, for, in 1910, Pelican Island was raided by men who killed the nesting birds. It had been alleged that Pelicans were a menace to the fishing industry, and war was waged against them. Among the empty nests, under bushes, and along the barren shore, we found headless bodies, pathetic bundles of blood-stained feathers and bleaching bones. We wondered why the birds had gathered around this place of slaughter when it had clearly been abandoned as a breeding haunt.

Jim suggested that it was "too early for eggs," but offered to take us to Jack's Point Island, some two miles distant, on the chance of finding a rookery there. We decided to go. The boat rocked on the choppy waters, and I was again kept busy with the baling tin during the passage. Not a bird was seen on or near the islet, yet it was the site of a rookery. There were several hundreds of old nests, and forty-two new ones. The latter formed four fairly straight rows in the lee of a low ridge, and nearly all contained eggs, apparently fresh. Here and there on the outskirts of the rookery lay an empty shell with a jagged hole in one side—the work of Crows. It was pleasing to know that the Pelicans of the Coorong had established a new colony, despite the ghastly work of the destroyers in the previous year. After our return to Melbourne news came that the Commissioner of Crown Lands had arranged to place the bird islands of the Coorong under the control of the South Australian Ornithological Association, as lessees, and that notice boards were to be erected, as a warning to vandals. This was fairly satisfactory, only notice boards cannot be relied upon to check people who have no respect for laws. Rangers must be in charge of sanctuaries if wild creatures are to enjoy complete protection. Poachers and plume-hunters are not the only enemies to be feared. A farmer once boasted

to me that he cared nothing for the Game Laws, and would shoot protected birds when he pleased. Unfortunately, I could never catch the man red-handed.

It seems strange that the Pelican, a prosaic bird, should be the subject of myths. Even now there are people who believe that a nest of the species has never been discovered. In her poem, "Where the Pelican



NEST AND EGGS OF PELICAN.

Builds," Mary Hannay Foott describes the departure of a party of horsemen for the undiscovered country:

"And thirst and hunger were banished words
When they spoke of the unknown West;
No drought they dreaded, no flood they feared,
Where the Pelican builds her nest."

A learned Greek of old gravely asserted that the Pelican, when it found its offspring killed by a snake, beat its sides, and with the blood produced restored life to the stark bodies.

While we were on Jack's Point Island the wind became more boisterous, and whipped the lake into fury. We began the return voyage under rather dangerous conditions. The boat rocked like a leaf in a troubled pool, and was kept afloat only by constant baling. We were not sorry to reach Policeman's Point, where Bob awaited us, and quickly provided billy tea, which helped to warm our chilled bodies. The boatman asked us to visit his home at Salt Creek, and we readily agreed. It was a drive of four miles, and on the way we passed several tea-tree swamps, which were tenanted by hundreds of Black-tailed Native Hens [*Tribonyx ventralis*]. They scurried over the mud and up and down dark avenues in the thickets as busily as ants on a foraging expedition. These quaint birds, which resemble black bantams, sometimes appear in great numbers in different localities. Many were seen in the streets of Adelaide in 1846, and invasions of other cities have been recorded in later years.

Jim's home was like a little village, for there were several detached buildings, inhabited by a numerous family, and dogs and fowls were not lacking in the big yard. The good wife, dusky-hued and buxom, proved hospitable and generous. She presented us with several native implements, notably a neatly shaped stone, which had been used for pounding Nardoo seeds. We learned that some two miles from the creek there was a burial place, on an islet in the middle of a swamp. The aborigines, instead of interring their dead, wrapped the bodies in bark and placed them on platforms among branches of stunted trees.

Returning to Woods Wells, we again became guests of the boundary rider, starting for Meningie on the following day. The journey was pleasant. On the lake we saw great flocks of Grey Teal, Black Ducks and White-eyed Ducks [*Nyroca australis*]. A

group of Chestnut-breasted Shieldrakes [*Casarca tadornoides*], sunning themselves on a sand spit, made a charming picture. Black Cormorants [*Phalacrocorax carbo*] were abundant. Several nests of the species, built in dead bushes, had been noticed on Jack's



PELICANS AT THE ZOO.

Point Island. We stopped near a beach strewn with rose-tinted shells to admire a flock of Red-necked Avocets [*Recurvirostra rubricollis*], which stood knee deep in the water. Presently the birds divided into small companies, and began to wade slowly, dipping long beaks beneath the surface to slide them through the ooze in quest of food. We could not detect a leader, nor were any vocal commands given, yet the Avocets conducted their foraging in an orderly

manner. Sometimes a detachment would form fours, as it were, and, with heads erect, wade for a few yards before beginning to feed again.

Our driver was highly amused by the scientific names of different birds, and attempted to memorise some for the benefit of his friends in the township. *Strepera fuliginosa* took his fancy, but he insisted that the specific name of the Black Bell-Magpie should be pronounced "Let-you-know-Sir."

We arrived at Meningie just in time to miss the steamer, which crosses the lakes once every two days. We profited by what at first appeared to be a stroke of ill-luck, for one of the spare days was spent on Campbell Park Station, among the Ostriches. The boy who drove us to the homestead on Lake Albert was a fellow of infinite jest, and he entertained us by relating his own experiences with Ostriches. One day, when riding his bicycle across a paddock, he was confronted by a row of the big birds, which barred his way to the gate. Dismounting, he manœuvred for a few minutes, and made a dash when the chance came. He was glad to be on the safe side of the gate, for male Ostriches are not pleasant company when they are angry. On another farm a man, who was unfamiliar with the ways of Ostriches, hung his watch on a nail in a fence post, near the spot where he was working. Half an hour later he saw the chain dangling from the beak of a male bird. This anecdote was followed by others, until the last paddock gate had been shut behind us, and Campbell House appeared in sight.

We were welcomed by Mr. A. P. Bowman, who drove us out to the Ostrich paddocks, where hundreds of the birds were seen. They are noted for curiosity, and when the buggy entered the first paddock a number of birds stalked up and gazed solemnly at us. The males, after awhile, began to display jealousy. If one came forward to win a better view,



CAPE BARREN GEESE.

he was sure to be buffeted by a rival, until one or other retired. I wished to obtain photographs, and, alighting, crept forward with the camera. The birds became restless, but did not retire; on the contrary, as soon as my head disappeared beneath the focussing cloth they advanced. I followed their movements as reflected on the ground glass, and found it necessary more than once to suspend operations. My companions in the buggy were unkind enough to laugh at my discomfiture, but in the end I managed to get the pictures desired. Here and there we noticed piles of "Ostrich food"—crushed stone. The birds, of course, do not subsist on such hard fare; grass is their principal food on the farms, and it is said that one Ostrich will consume nearly as much green stuff as a bullock. Fragments of stone and other indigestible matter are swallowed, to aid in the trituration of real food. Mr. Bowman told us many interesting facts regarding the breeding habits of the Ostrich. The males become savage as the pairing season approaches, and combats between rivals are of common occurrence. During this period the birds are dangerous to human beings. Each male forms a harem, and several hen birds lay in a single nest. A nest that we saw on the station contained over forty eggs, some of which were embedded in the sandy soil. No fewer than sixty-four eggs were counted in another nest. Both sexes brood in fairly regular shifts.

It was interesting to see Ostriches and Emus in company, as we did at Campbell Park. Unfortunately, there were few of the Australian birds. The Emu appears to be doomed, whereas the number of Ostriches in Australia is increasing.

Learning that Black Swans had started to nest, we drove to the reed beds, some miles from Campbell House. The water was cold, and fairly deep where the reeds grew, and the native stockman was asked to locate a nest, if possible, in the thicket nearest to dry land.

He entered the water, and explored the reeds without success, except that he found the nest from which he had taken five eggs a few days previously. As stated in another chapter, aborigines are fond of Swans' eggs, and probably thousands are gathered every season in localities where the birds are numerous.



BLACK SWAN AND CYGNETS.

Leaving the Swans' haunt, we drove to a little bay where, to my delight, a flock of Cape Barren Geese [*Cereopsis novæ-hollandiæ*] was seen. This remarkable bird is rare, though formerly it was abundant, especially among the Bass Strait islands. The genus *Cereopsis* was founded by Latham in 1801 on a single specimen. He included it in the order *Grallæ*, but it has long been recognised as a true Goose, and is the only living representative of the sub-family *Cereopsinæ*. The extinct *Cnemiornis*, of New Zealand, was a near ally of the Cape Barren Goose. Two young Geese, which were captured by a naturalist in Bass

Strait and brought to Melbourne, became very tame, and fed unconcernedly with a number of domestic fowls. There was an old wooden box in the yard, which the male Goose came to regard as its property. Every day the bird mounted the box to utter its call notes.

Our visit to the Ostrich farm was followed by a trip to a large area of swampy land, a few miles from Meningie, where Marsh Terns [*Hydrochelidon fluviatilis*] nested in thousands in 1910. There were no graceful birds flying over the swamp when we saw it, and no clamour of wild notes was heard. Frogs leaped from some of the old nests, which studded the bushes, and their croaking was the only sound that broke the silence of the desolate place.

We left the lakes with regret, and some day a promise to return will be fulfilled.

CHAPTER VIII.

ACROSS THE PLAINS

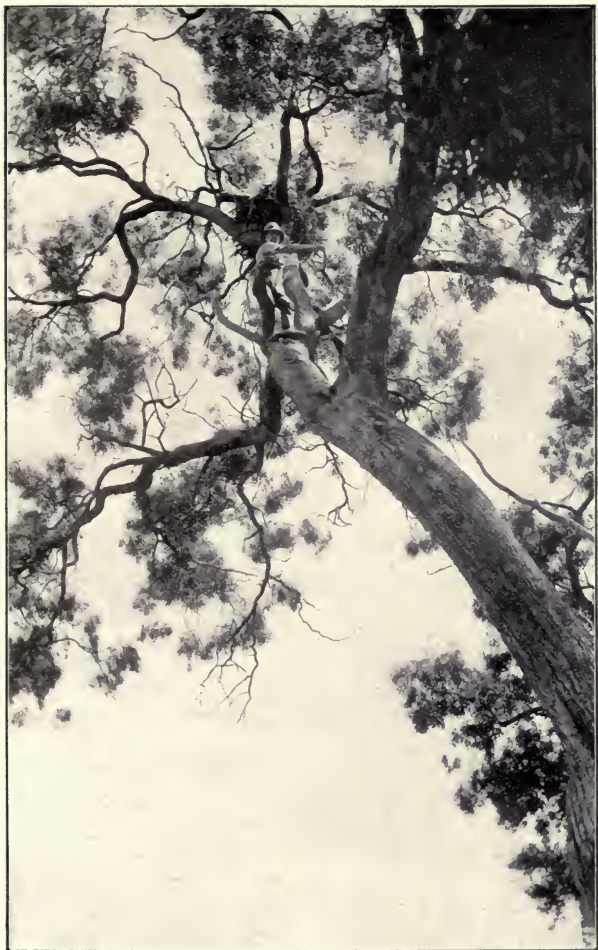
WHEN news came, in October, 1913, that it was a good season for bird life in Riverina, I promptly telegraphed to my naturalist friend at Jerilderie, saying that I would join him in a trip across the plains, to Yanco Creek and the Ibis swamps. But it was near the end of November before I could leave Melbourne.

A rail journey of 156 miles brought me to Tocumwal, a thriving border town in New South Wales, where I caught the Finley coach. There was only one other passenger, a youth from the city, who talked of horses incessantly, a popular topic wherever one goes in Australia. But I was not interested in the Melbourne Cup or any other racing event, and my fellow-traveller must have classed me as a "queer chap." We spent the night at Finley, a typical Riverina township, and on the morrow morn secured seats in the Jerilderie coach. Luggage and merchandise occupied the greater proportion of space, and I had a box seat. This was no great advantage, for it was cold in the wind till noon, when more genial conditions prevailed. The driver was not in a communicative vein; he answered questions shortly, and rarely volunteered a remark. Some coach drivers are great talkers, and their conversation is interesting; but, now and again, one meets the silent man. Of a certain driver it is related, that he spoke to a box-seat passenger twice in the course of two hours. As the coach passed a sun-burned bushman on the road the driver said, "Do you see that man?" "Yes," was the expectant reply. But the man with the reins

seemed to fall into reverie, and they were twelve miles from the spot where he called attention to the pedestrian when he remarked quietly, "He's my father." This is a traveller's tale, but my own experience of coaching in the Commonwealth helps me to credit it.

At a station homestead we were delayed for half an hour while canvas bags were delivered and received; for we carried His Majesty's mail, and, along the road, bundles of letters and newspapers were tossed from the coach into old soap boxes or kerosene tins, fastened to fence rails or tree trunks. Here and there a man was waiting for the mail, and we stopped for a minute, to deliver a welcome budget and exchange news. The driver thawed in the afternoon, when the sun beamed from a cloudless sky, and entertained me with reminiscences of coaching in the early days. He spoke of the Kelly Gang, who bailed up a Jerilderie bank years ago; of the pleasures and plagues of driving; and of other things. After sunset the box seat was not at all desirable, for we were driving against the wind, which became too cool for comfort. We were pleased when, at about 9 p.m., the town lights glimmered ahead. My friend met me at the hotel, and for an hour we discussed plans and prospects.

A few days were devoted to rambles in and around Jerilderie, which proved most interesting and profitable. Many fine photographs of birds and their nests were obtained. My friend's own garden and paddocks, with their trees and hedgerows, provided so many delightful subjects that I was tempted to be imprudent in the use of plates. I had brought about two hundred, and could easily have exposed double the number to advantage while in Riverina. Tri-coloured Bush-Chats [*Epthianura tricolor*] were nesting in the boxthorn hedges and small bushes, within the town area, and I spent a sunny morning among them. A hedgerow nest, containing three



A DARING CLIMBER AT NEST OF THE EAGLE-HAWK.

eggs, was chosen, and the camera erected five feet away. Then I hid behind a box at a distance of thirty feet, and waited. For ten or twelve minutes the birds were highly suspicious. The male was the first to gain confidence, and when he alighted on the rim of the nest I pressed the bulb. The click of the shutter made the bird spring into the air, ruffled and puzzled, but it was soon back on the nest, and another plate was exposed. The female Chat had been hovering around, mostly on the other side of the hedge. Content for half an hour, at least, to let her mate face the apparent danger, she took the opportunity to enjoy a quiet meal, gleaned amid the stubble in a neighbouring paddock. The sun was so powerful that I thought the rubber tubing would melt, and the heat did actually damage the camera, causing a crack in the wooden base. Often, on the open plains, it was necessary to leave the camera standing in the sun for an hour or more, in order to obtain a photograph of some wild creature, and as a result all my dark slides were slightly warped. Riverina sunshine in November is nearly strong enough to boil a billy. Under a verandah in Jerilderie one day the thermometer registered 110 degrees.

Wood-Swallows of several species were nesting in the hedges and street trees, among bushes in the gardens, and in many odd places. Walking along an old post and rail fence, I counted seven nests, some of which were in danger of being wrecked by a gust of wind. A pair of White-browed Wood-Swallows [*Artamus superciliosus*] had selected as a nesting site the top of a coil of wire-netting, standing in a yard at the rear of the Mayor's house. Though the netting was needed for repairs to a fence, the birds were left in possession until a brood had been reared. I spent several hours with these enterprising birds, and secured a series of photographs. The male Wood-Swallow was much annoyed on seeing the camera

near the nest, and when I went into hiding behind a packing case, it flew over again and again, expressing its opinion of impertinent intruders in an unmistakable manner. Neither bird would visit the nest for awhile, but, at length, the female alighted on the edge of the coil of netting, and the camera shutter



WHITE - BROWED WOOD - SWALLOW AT NEST

clicked. The bird shot into the air like an arrow, but soon returned. It was a scorching day, and the nestlings suffered from the heat, as the mother bird perceived, for she spread her wings above the nest and vibrated them, at once giving shade and causing an air current. She panted herself, poor bird. I had to change my quarters before I could photograph the male bird. When it was away at the end of the yard I slipped across the open into a shed. The bird, with a small grasshopper in its beak, came

sweeping over my former hiding place, wheeled sharply, and alighted on a clothes line. After a minute's hesitation, it flew to the nest and fed one of the chicks. I did not miss the opportunity, but the bird was on the wing a moment later.

In a sapling growing close to the schoolhouse we found a nest of the Masked Wood-Swallow [*A. personatus*], which had been built while children romped and laughed in the vicinity. The eggs were heavily incubated, and there seemed to be every prospect of a brood being reared. Since the Gould League of Bird Lovers was formed, some years ago, Australian boys and girls have learned to observe and protect wild birds, and egg-collecting is rapidly becoming an obsolete pastime. The league has over 61,000 members in Victoria alone, and it is hoped that ultimately the total for the Commonwealth will be 250,000.

Nests of the Wood-Swallow [*A. sordidus*] were seen in many gardens. It was surprising, at first, to find such numbers of birds nesting within the town boundaries. But I learned that their value as insect destroyers was recognised, and they were strictly protected. A Chinese gardener's fruit trees were full of "Skies'" nests, and he was "jolly glad" to harbour the birds, because they ate "glassoppers and glubs." The local name, "Sky," for all species of Wood-Swallow frequenting the district, is not inappropriate, for the birds soar at great altitudes, and are most graceful on the wing.

There was no resident photographer at Jerilderie while I was in the town, and during my rambles with the camera I had some amusing experiences. A prosperous Chinese, whose waistcoat was banded by a gold cable chain, from which dangled a huge locket, hailed me in the street one morning and asked, "How much you chlarge?" He was incredulous when I explained that I was photographing wild birds for pleasure, shaking his head and smiling. A woman

in a garden became angry when I declined to take a family group. More than one blue-shirted horseman wished to be pictured in the saddle. I regretted that I could not flatter the vanity of these good people, but my supply of plates was too limited. At lonely homes on the plains, however, I was constrained to be more generous, and took photographs of a boundary rider's family, a pet Kelpie, "the best dog in the Riverina," and a station manager with his buggy and horses. It was a small return for all the kindness bestowed upon me.

One of my objects in visiting the Riverina was to study the Straw-necked Ibis [*Carphibis spinicollis*] in its breeding haunts, and my friend at Jerilderie agreed to take me to a Lignum swamp on Yanco Station, where thousands of birds were nesting. In the town I heard much of Ibises, and found that nearly every resident recognised the great economic value of the birds. One hot night vast numbers of young grasshoppers invaded the town. Thousands were crushed on the roadway and sidewalks, thousands clustered on wire screen doors of shops and dwellings, while every nook and corner held a pile of insects. "The Ibises would make short work of those pests," a man remarked to me, as he brushed a grasshopper from his coat sleeve. He had expressed the general opinion of the townspeople.

Travelling across the plains in a light two-wheeled vehicle, we saw Ibises on patrol duty. Each bird seemed to have a small area of its own, around which it stalked, driving its long, sickle-shaped bill into the dry grass at brief intervals. It was reasonable to believe that every tap of the beak meant death to a grasshopper. But for the birds, I thought, these plains would soon become barren, and it is no wonder that station owners protect them. The swamp was in the centre of a large paddock, and guarded by a row of gaunt trees. As we drew near hundreds of

Ibises were observed, flying above the rookery, and I was impatient to be among their nests. Halting in the shade of a She-oak, we entered the swamp bare-legged, but wearing old boots. The water, resembling pea soup in colour and consistency, was



NEST AND EGGS OF STRAW-NECKED IBIS.

shallow, rarely rising more than a few inches above our ankles, and there were many little mud islets bearing marks of bird feet. Lignum bushes grew thickly over the greater part of the swamp, and in them the nests were situated. The stems of this water-loving plant are tough and stringy, but the Ibises break them down with their strong feet, and form shallow, saucer-shaped nests of the more pliable sticks and twigs.

There were many thousands of nests in this rookery. Some were empty, some contained eggs, and others held young birds that were in the down, half-fledged or nearly ready to fly. The most advanced fledglings, generally speaking, were found in nests around the centre of the rookery, while the empty nests were on the outskirts where the bushes were surrounded by oozy mud. Nests of the intervening area contained either heavily incubated eggs or chicks a few days old. The birds begin to nest in bushes which grow where the water is deepest, and when all available sites have been occupied, the settled area extends towards the shores. Early arrivals secure the best positions, while the laggards must be content with residence in the outer suburbs. As a result, some are likely to lack families; for, as summer advances, the swamp dries up, and Ibises often desert their nests when the water disappears. We noted hundreds of addled eggs in nests near the banks, also many which had been broken by Crows. In all parts of the rookery dead nestlings were seen. Some had fallen into the water, many had been trampled upon by their parents or other Ibises, and, possibly, Crows had killed a certain number.

We had no difficulty in securing photographs of nestlings in the down, but it was different with those of larger growth, which could move nimbly about the bushes. Nearly every bush supported several nests, and when, in the "advanced area," we focussed on a charming group, the fledglings scrambled from their nurseries. Some toppled into the water, and had to be rescued promptly to avert tragedy; others dived into the bush beneath the nests, and an adventurous company of seven climbed to the summit, where they huddled in an old nest. This occurred a dozen times. The parent birds were even more troublesome; indeed, they baffled all our efforts. There was plenty of cover, and, dragging

the camera, I crept cautiously from bush to bush towards a flock of some two hundred birds, which were standing on and around a mud flat. But they rose the instant I raised the camera from a bush. Next, I approached some birds which were busy at



IBIS NESTLINGS.

their nests. The result was the same; the birds took wing and went soaring into the blue until they were no larger than Larks to our sight. From the branches of a lone tree, near the centre, we obtained panoramic views of the rookery. The tripod legs were lashed to twisted boughs, and by imitating a limb-contortionist I managed to focus and expose some plates. After this we rested. It had been a busy afternoon, packed with interest. But I was not perfectly satis-

fied; for we had failed to find a nest of the Pink-eared Duck [*Malacorhynchus membranaceus*]. My companion knew this swamp to be a breeding place of the species, and we searched diligently among the Lignum. It was rather risky, pulling aside the stems and peering into the bushes, for Black Snakes were likely to be disturbed. But neither nest nor reptile was seen. The Pink-eared Duck, which is peculiar to Australia and has no near relative, is known to sportsmen as the Widgeon. Gould was charmed by this species; in his "Handbook to the Birds of Australia" he writes:—

"No one of the tribe that I have observed in a state of Nature presents a more elegant or graceful appearance than this little Duck, which is generally seen in small companies of from six to twenty in number, swimming over the placid lagoons, and betraying so little fear and shyness on the approach of man, as to present a singular contrast in this respect to the other members of the family. Its flight is very powerful and swift."

Near the swamp, in the shade of a gum tree, we saw a flock of Maned Geese or Wood-Ducks [*Chlamydochen jubata*], beautiful little birds—brown, black and gray plumage, metallic green on the wings. We met with this species again at Yanco Creek, where the tent was pitched among lofty Eucalypts, old trees with huge fantastic boughs. It was pleasant to rest beside running water, and screened from the sun, hear birds calling amid the leaves. But the camp fire attracted hosts of insects, which dropped into the tea, explored the "tucker box," or wandered into the tent. The night was cool, and we might have enjoyed sound slumber had the mosquitoes been less aggressive than they were. In the morning, after a cruise in a flattie among the gaunt, dead gum trees in the creek, we began the homeward journey. The wind, a zephyr when we started, gradually increased its

velocity until it was blowing half a gale. And we were still four miles from Jerilderie when a towering wall of darkness came sweeping across the plains. There was no hope of escaping the duststorm, so we stopped the pony, and, with muffled heads bent low, awaited the onslaught. For several minutes the landscape was blotted out by whirling clouds of dust, and we were enveloped. Breathing was difficult, and had the air not cleared quickly we would have been half-suffocated. Our clothes were coated with dust, and the pony appeared to have changed its colour. We watched the storm tearing towards the town, and followed in its tracks. Our troubles were not yet over, for another duststorm overtook us, and we entered Jerilderie in semi-darkness. These storms are not unusual on the plains in summer, and Riverina folk have become used to them; but they are decidedly unpleasant, and sometimes do damage.

My friend the naturalist was also a bird trapper, and in the course of our rambles the question of bird protection was discussed from different points of view. He was aware that many ornithologists desired to have the Rose-breasted Cockatoo or Galah [*Cacatua roseicapilla*] included among protected species, and explained the position. If trapping were forbidden, he stated, the birds would increase beyond measure, and farmers would continue to war against them with poisoned wheat, which would claim other feathered victims besides Galahs. Poisoning had already resulted, in his district, in a considerable decrease in the numbers of one species of Parrot, which was not regarded as a pest by wheat-growers. This argument was weighty; but I wished to judge from personal observations whether the Galah should be branded as a pest, and also to see how birds were caught. So I arranged to join a party of trappers. Their outfit consisted of nets, etc., a waggon surmounted by a large cage, divided into several com-

partments (one contained call birds), and a jinker, with two horses for the large vehicle and a pony for the other. There were four in the party, including "the Boss" and myself. We travelled slowly in the direction of Yanco, and late in the afternoon turned into a farm paddock, where we outspanned in a grove



BIRD TRAPPERS' CAMP.

of gum trees. Remarking that Galahs were "eating him out," the farmer welcomed us, and expressed the hope that we would make a good haul.

That evening the trappers carried nets, poles, bagging, iron stakes and mallets to a crop paddock, where they worked hard for an hour. Two pairs of nets were set, flat on the ground, so that a sharp pull on a master-rope would cause them to spring up and fold over each other in an instant. The rope, in each case, was taken through a hole in a bag screen erected along the wire fence, opposite the nets.

Before sunrise next day the men were astir, for it is only in the early morning that bird-trapping is likely to be successful. Half-awake, I joined the trappers as they left camp. Arrived at the paddock, after call birds had been tethered to the nets, we divided forces and hid behind the screens. Holding the rope in one hand, my companion crouched against the bagging and watched the nets through a spy-hole. Soon after dawn Galahs began to appear from the direction of the creek, at first in threes and fours, then in fairly large flocks, until there were thousands of birds flying above the wheat. Beautiful they were, with the pale sunshine glancing on their silvery-gray and rose-pink plumage. For awhile, they continued to fly over the field, hither and thither, as if uncertain where to alight. Finally, one company swept down; others soon followed the example, and the trappers prepared for immediate action. A flock, hearing the captive birds call, swept right over the nets that I was observing, wheeled, and dropped to earth. The trapper pulled the rope, the net poles clashed, and discordant screeching, expressive of both fear and anger, rent the air. But only eleven out of some thirty birds had been captured. The unfortunates fought valiantly with beaks and claws, and made almost as much noise as a dozen sirens in a sea fog. They were freed from the meshes and placed in a box, where they continued to utter loud protests. In the course of an hour the nets were sprung three times, with the result that eighty-seven birds were captured. This was not considered a good tally. At the waggon the Galahs were transferred to the big cage, and perched in huddled rows on the long bamboo rods. They declined food and water for a few hours, and looked very sulky. By the next day they had settled down a little to the new conditions, and ate and drank without being coaxed.

I tramped across acres of stubble to see a wheat

crop, which was said to have been ruined by Galahs. A few birds were flying over the field, but none rose from the ground as I drew near. The wheat stalks had been broken down in many spots, and there was not sufficient grain in the whole field to tempt a gleaner.



GALAH NESTLINGS.

Admitting that Galahs do much damage among the wheat, one must not forget that the birds also render valuable service to farmers by destroying grasshoppers' eggs, which they dig out of the earth with their powerful beaks. But it is certain that wheat-growers will continue to persecute Galahs, even if trapping be forbidden, and poisoned grain is a menace to birds of other species that do little, if any,

damage. It is best that the trappers should work on the plains. At present there is no sign that the Rose-breasted Cockatoo will become rare; I saw countless thousands in Riverina. Trapped birds are sold in Sydney for about ninepence apiece. The dealers resell them at a good profit, chiefly, I believe, to officers and seamen of overseas vessels. Large numbers are taken to European countries. Besides using the nets, trappers collect fledglings from the nests, and rear them for market. They know nearly every nest in their district, and go the rounds twice in a season, securing a large number of baby birds each time. Only a skilled climber can succeed at this work, for many of the nest hollows are in lofty limbs of dead trees. When the lowest bough of a tree is from twenty to thirty feet above the ground, the Galah-hunter ascends with the aid of a rope, looped around the trunk. Planting his feet firmly against the bole, he jerks the rope up a few feet, and pulls his body after it, repeating the action until he can grasp a bough.

Several farms were visited by the trappers, and they were welcomed at all. Each morning the nets were worked with varying success. When I left them the men had three hundred birds in the cages. At one pleasant homestead a hut was placed at our disposal, and the landowners, two brothers and two sisters, treated me with especial kindness. One of the sisters was a lover of birds, and had tamed several Galahs without caging them. Day long, she said, the birds were away with the flocks, but towards sundown they returned to the homestead, where they remained for the night. I saw three of these tame-wild birds on a favourite perch near the windmill. The most of the birds on the estate were protected, and many of them had responded to kindness. In the home paddocks several nests of the "Blue Bonnet" [*Psephotus xanthorrhous*], a beautiful little

Parrot, were located. One was on the ground within a hollow trunk, the entrance being a knot-hole twelve feet above. One of the farmers told us that a pair of Native Companions had nested in a swamp a mile from the house. We had heard much concerning



ROSE - BREASTED COCKATOO (GALAH)
(A Tame - Wild Bird).

these birds at another farm, where a lanky fledgling was being reared as a pet, though Riverina folk, as a rule, regard the Crane as a pest. We were told that one farmer had recently poisoned over four hundred birds: the old story, "They damage wheat crops."

Great flocks of Galahs were seen in the vicinity of the homestead, and my friend arranged for the two men to stay there, while he and I went farther afield to observe, instead of capture, birds. An albino

Galah had been noticed in company with several hundreds of the ordinary type, and the trappers were anxious to secure it, such specimens being worth anything up to £5. From a nest in the Jerilderie district each season, for three years, two albino nestlings were taken, and all were reared.



YOUNG NATIVE COMPANION.

Bidding farewell to our hosts and the trappers, we started in the jinker for Yanco Creek. To pass the time, we talked of many things, one subject being the longevity of Parrots and Cockatoos. A White or Sulphur-crested Cockatoo [*Cacatua galerita*], owned by Mrs. S. Bennett, of Tom Ugly's Point, Sydney, was a Methuselah. "Cocky Bennett" was 118 years old when he died. Captain George Ellis bequeathed

the bird to Mrs. Bennett, who had it in her possession for over twenty years. The captain, then a young apprentice, first met "Cocky Bennett" on a sailing vessel in the Pacific. The bird was owned by the skipper, and was said to be about the same age as the apprentice, who ultimately became captain of the ship. "Cocky Bennett," during his declining years, had few feathers to hide a shrivelled skin, and the crest was represented by two yellow plumes. The upper portion of the beak was of abnormal length; it grew rapidly, and pieces had to be cut off from time to time. The ancient bird was a celebrity, and delighted numbers of visitors with quaint remarks, a favourite sentence being, "I'll fly, I'll fly—I'll fly."

We reached a boundary rider's hut at sunset, and stayed there for the night. Before starting again in the morning, we strolled through a timbered paddock, where a small flock of Crested-Pigeons [*Ocyphaps lophotes*] was seen. Several nests were discovered, but in each case the brood had flown. At one farm, which we visited on this trip, Crested-Pigeons were so tame that they fed daily among the fowls, taking their share of the grain.

By noon we were among the gum trees on Yanco Creek, and shade was very welcome after the sun-glare on the plains. The afternoon was devoted to camera craft, many of our pictures being obtained from the flattie. Every dead tree in the creek—and there were hundreds within view of the camping place—was worth inspection. My companion, as we paddled along slowly, pointed out the most interesting hollows. The nursery of a pair of Black-cheeked Falcons [*Falco melanogenys*], in which a brood had been reared each season for some years, was nearly forty feet above the water; while two happy "Mountain Ducks" [*C. tadornoides*] had tenanted a hollow, which was easily examined from the flattie. Galahs' nesting holes were both high and low, in boles and



AT THE NEST OF THE YELLOW PARROT.

branches. One tree was in the possession of seven pairs of birds, and had another hollow been available it would surely have been used by an eighth couple. In the majority of cases, the Cockatoos' nests contained young birds, grotesque little objects, naked or with



YOUNG COCKATOO - PARROT

sprouting feathers. A nest of the Yellow Parrot [*Platycercus flaveolus*] contained four eggs. This splendid bird is rather rare in the district. Several pairs of Cockatoo-Parrots [*Calopsitta novæ-hollandiæ*] were observed, and a nest was discovered, but it was in an inaccessible position within the "mouth" of a hollow stem, high above the water. Through the glasses I watched the birds feeding their offspring.

First one, and then the other flew to the nest, and the fledglings each received a generous share of partially digested food, which the parents regurgitated. Galahs, also, were feeding their young in a thousand dark hollows.

The nest of a pair of White-rumped Wood-Swallows [*Artamus leucogaster*] was revealed by the actions of its owners, which flew around our heads as the boat glided beneath a big, slanting bough. The nest was in a slight depression on the upper part of the limb, and shielded by a broad strip of bark; it would certainly have escaped notice had the parent birds remained tranquil. Three fledglings were secured, taken ashore, and ranged on a slender branch. But they tried the photographer's patience, one after another, in response to the old birds' urgent notes, fluttering from the perch. It was impossible to photograph all three in a row, and, finally, the troublesome birds were allowed to rejoin their parents.

Camp was shifted next morning. Crossing the creek, we followed its course along a bush road sheltered by ancient Eucalypts. Near a bridge we stopped to admire some Ground-Doves [*Geopelia tranquilla*], which were pecking busily among dead leaves and twigs in a shady spot. Strangely enough, the nest of a pair of Nankeen Kestrels [*Cerchneis cenchroides*] was discovered a few minutes later. Attention was transferred from peaceful Doves to birds of prey. The Kestrels' home was in a hollow of a gum tree by the creek side, and one of the four fledglings that it contained was perched in the "door-way." We captured the quartette after a sharp skirmish, in which the birds used beaks and claws with effect, and placed them on a low bough. They remained quiet for awhile, and several photographs were obtained. But when we attempted to catch them again, to replace them in the nest, they developed wing-power and flew over the creek.



NANKEEN KESTREL (FLEDGLING).

A nest of the Delicate Owl [*Strix delicatula*], in a hollow of a dead gum tree standing in the creek, was visited. My companion had discovered the nest some



DELICATE OWL, SHOWING THE DOWN.

weeks previously, when it contained two eggs, and we hoped to see a pair of nestlings. A natural causeway of logs and debris enabled us to reach the tree dry shod; but it was not so easy to scale the smooth bole. There was only one nestling after all; its fellow, no doubt, was more advanced, and out in the world. We brought the baby owl to the bank, where it blinked

sleepily and was perfectly docile. Its back was covered in soft white down, like teased silk, but the wing and tail feathers were well developed. The Delicate Owl is not a rare species, though its nest is seldom found.

Leaving the Owls' haunt, we walked to a billabong, where Warbling Grass-Parrots [*Melopsittacus undulatus*] were nesting among the dead gum trees. Many birds were seen entering or leaving hollows, but all appeared to have chosen trees which stood in fairly deep water, and, lacking a boat, we could not use the camera to advantage. Crossing the plains, we had seen vast flocks of "Betcherrygahs." Startled while feeding, thousands of lovely little birds rose from the ground, and flew to the nearest tree. In flight they resembled butterflies, the glorious "Bird-Wings" [*Troides priamus*], which flutter over Lantana bushes on the northern rivers of New South Wales. During some seasons Warbling Grass-Parrots are so numerous in Riverina that trappers capture many thousands, and the market becomes glutted, though the birds are offered for sale at a few pence apiece.

After our adventures among birds on the Yanco, we returned to Jerilderie, sunburned but satisfied, with a store of pleasant memories and many unique photographs. Riverina is a wonderland for bird-lovers.

CHAPTER IX.

AMONG THE PALMS

A NATURALIST'S education has scarcely begun until he has been in the tropics. For, as Grant Allen expressed it, the tropics are biological headquarters, where the struggle for existence among plants and animals is carried on fiercely.

Though a Victorian, I freely admit that Queensland, from a naturalist's point of view, is the most interesting State of the Commonwealth, chiefly because of its tropical fauna and flora. But the coastal scrubs of Northern New South Wales are sub-tropical, and one need not cross the Queensland border in order to roam among palms and see the Rifle-Bird. In November, 1907, in company with other naturalists, I visited the Tweed River, Tumbulgum, a picturesque township, being the base from which we worked. Despite sugarcane culture and timber-cutting, we found large areas of wild country to explore. The Tweed rises in the Macpherson Range, and flows into the Pacific Ocean; it is not a great river, but one of the most beautiful in Australia.

We travelled by rail from Brisbane to Tweed Heads, and there boarded a small steamer. The river voyage to Tumbulgum was delightful. The steamer moved slowly along a narrow channel, rounded a sand-spit, and headed up stream. Mangroves bordered the water; Terns and Curlews [*Numenius cyanops*] were feeding on the mud flats. Further inland the scenery was more like what we had expected. On one side of the river were low cliffs, and verdant slopes dotted with trees; the other bank presented a wall of

luxuriant vegetation, and, naturally, received the greater share of attention. Palms reared their graceful crowns above the scrub, Moreton Bay Figs [*Ficus*



PALMS AND PARASITES (ORCHIDS AND FERNS).

macrophylla] displayed masses of glossy, green foliage; and beautiful shrubs and creepers kept the botanist busy with pencil and notebook. To many of us, the lesser plants were unfamiliar, but we could admire them without knowing either their popular or scientific names.

Some of the trees supported clumps of Staghorn-Fern [*Platycerium*], and lovely clusters of orchids were seen. Green rushes marked little creeks, which issued from the jungle—the heart of darkness—while quiet backwaters were splendid with blue lily flowers. Here and there the forest gave place to canefields, and small cottages began to appear as we approached our destination. Just below Tumbulgum two Kanaka children, nearly naked, were paddling a canoe along the bank. We reached the township early in the afternoon, and our advent caused some excitement among a section of the residents. A pile of luggage, portmanteaux, collecting cases, and so forth, strengthened the belief that we were an itinerant theatrical company.

“What are you going to play?” asked a loungee. “One of them bloodthirsty pieces?” We assured him that we were only humble naturalists, and he looked disappointed. But ere we left Tumbulgum “Bill” had become a firm friend, and we parted with mutual regret.

Our luggage was carried to the hotel by instalments, the only vehicle available being a wheelbarrow. We had comfortable quarters, and the host studied our needs in a commendable manner. Observing began after tea, when we strolled along the river bank, smoking, and at peace with all the world. Fruit Bats [*Pteropus sp.*], or Flying-Foxes as they are popularly termed, were feeding in a big Moreton Bay Fig; a noisy, quarrelsome dinner party, entirely lacking in table manners. They wasted more than they ate, for every moment figs with only tiny pieces nibbled out dropped to earth. Standing under the old tree, we saw many bats climbing among the branches, while others were hanging by their claws, head downward, eating fruit greedily. The restless ones squabbled and uttered curious chirping notes. A specimen shot for museum purposes proved to be a female, with a



A PALM GROVE, TWEED RIVER.

naked young one clinging, spread-eagle fashion, to the under surface of the body. The babe was a repulsive looking creature, but we deeply regretted having killed its mother. The bat was shot while on the wing, which proved that the young are carried during the long flights to and from the "camp." When the dead animal and its offspring were taken indoors a musky odour pervaded the room, and we were politely asked by a young woman, who, at first, had been anxious to inspect them, to "take the horrid things away." Our zoologist spent an hour skinning the adult bat, while the young one was chloroformed and placed in spirits.

The head of a Fruit Bat resembles that of a Fox, hence the popular name. Some simple folk, perhaps, really believe that the creatures are winged Foxes. Several species inhabit North and Eastern Australia, and in some districts the animals are exceedingly numerous. They are gregarious, forming large "camps" in wild spots, remote from human habitations. Day long the bats remain in "camp" hanging head downward from the branches, which often bend beneath the burden. At sundown the creatures unfold their wings, rise above the trees, and fly swiftly to the feeding ground, which may be many miles from the "camp." They are particularly partial to cultivated fruit, and do much damage in orchards in the settled districts. At intervals the growers form hunting parties, which proceed to a "camp" and shoot hundreds of Flying-Foxes as they hang from the boughs. It is not sport, but merciless slaughter. Aborigines regard the Fruit Bat as a delicacy, for their noses are not offended by the musky scent, which nauseates white people. It is said that the flesh is palatable, but I should not care to taste it. In Queensland these huge bats often enter towns; I have seen them even in Brisbane, feeding in a Moreton Bay Fig tree near the central railway station.

Our first day in the scrub was packed with interest. Crossing the river in a ferry boat (fare one penny), we divided forces. I joined the smaller party, which decided to follow a road leading into the hills. A cart laden with sugarcane for the mill was met, and the driver gave us a lift for a mile. Afoot again, we



CANE-CUTTER'S HOME, TWEED RIVER.

made slow progress, for the slopes on our right were clothed in luxuriant vegetation that demanded constant attention. Palms and ferns of many species, wild Bananas, and other plants were noted. At one spot the crimson flowers of an Hibiscus shone among the ferns. Presently the road narrowed and entered a grove of tall trees, chiefly Cedars and Eucalypts, interspersed with Spear Palms. Butterflies flew lazily in the sunshine, the most beautiful being the Bird-

wing [*Troides priamus*, var. *richmondii*]. The male of this lovely insect has a golden body and splendid wings, which measure about six inches from tip to tip. The fore wings are velvety black with a golden-green band along the front; the hind wings are bright golden-green with velvety black margins and spots. The female is larger than the male, and of a blackish-brown colour, with some white on the wings. On the northern rivers this butterfly is known as "The Trogan."

There were gaily-coloured birds, as well as insects, along the forest highway. Red-backed Wren-Warblers [*Malurus cruentatus*] darted in and out of the bushes, or, with tails erect, hopped about the road. High among the branches a Spangled Drongo [*Chibia bracteata*] was seen. It was pleasant wayfaring, but after awhile we tired of the open road, and, plunging into a gully, began to break a path through palms and ferns and clinging creepers. The Climbing Lawyer Palm [*Calamus* sp.], with its endless barbed stems, was the most formidable obstacle, and was overcome only by the vigorous use of clasp knives. The thorns are curved, and when they penetrate flesh or clothing it is difficult to remove them. Our hands were badly lacerated, and we left many fragments of cloth among the Lawyer Palms. Everywhere in the scrub this strange plant was encountered, the stems in most cases being of great length; in fact, one could rarely discover where they began and ended. We learned to respect another vegetable wonder, the Giant Nettle-Tree [*Laportea gigas*]. If one's hand comes in contact with a "Touch-me-not Tree" (popular name) he is likely to suffer from sharp stinging pains for many hours afterwards. The Giant Nettle, which sometimes attains a height of eighty feet, is native to New South Wales and Queensland. Specimens of the Walking-stick Palm [*Kentia minor*], some five feet in height, were cut to aid us in our scramble through the scrub.

When we rested for lunch, it was discovered that ticks had selected quarters on different portions of our bodies, chiefly at the back of the neck. These repulsive parasites swarm on foliage in the scrub, and



NETTLE TREE, AMONG PALMS.

when one passes close enough seize the opportunity to win a warm-blooded host. The scrub tick is small, and works so gently that one does not feel any inconvenience, perhaps, until it has buried its head deeply in the flesh. If, in disgust, the victim tries to tear a tick from its hold, the head is apt to be left in the

flesh, with serious consequences. Undressing for a bath one evening on the Tweed, I felt a slight pain in the right shoulder, and found that a tick was lodged there. It was removed quickly, all save a fragment of the snout; but the flesh around the spot became inflamed, and I still bear a circular scar on my shoulder. Dogs and other animals, which become infested by scrub ticks, sometimes die as a result. One method of dislodging a tick is to touch the protruding part of the body with a red-hot needle, when the creature, writhing in pain, loosens its hold.

Besides scrub ticks, we had to combat thirsty leeches, which, as soon as we remained still in any moist place, advanced in battalions, and crawled over arms and legs, seeking flesh on which to batten. The scrub, of course, harboured millions of ants. Most interesting was a species about half an inch in length, which progressed by jumping. It was laughable to see a number of the insects leaping in all directions. Tiny red ants swarmed on the foliage, and we found nests in clumps of Staghorn Fern, and swollen stems of other plants, which were riddled with galleries. Under a bush we found a pile of broken land shells, which indicated the presence of Noisy Pittas [*Pitta strepitans*]. Some of the shells were of large size, and handsomely coloured—bands of Vandyke brown, pale orange and amber. Pittas feed largely on land molluscs, breaking the shells by dashing them against a stone or log.

Hours slipped away unheeded, and we penetrated deeper into the scrub, careless of direction till late in the afternoon, when somebody suggested that it was time to seek the road. This was more difficult than we had anticipated, and it was dark ere we emerged from the scrub in the gully. A "short cut" led us into further trouble, and we stumbled through the jungle till a track was discovered. It was rough and steep, and there was no moonlight to reveal the stumps and fallen trees. But we welcomed the darkness, be-

cause it enhanced the brightness of the fire-flies' fairy lamps. We imprisoned a dozen insects in a butterfly net, and by the light which they produced were able to read a watch dial. *Luciala flavicollis* is a small beetle of a light brown colour. During the day it clings to leaves and twigs, becoming active after sunset. Flashes of light are emitted from the end of the



THE TWEED RIVER AT TUMBULGUM.

abdomen, like sparks struck from glowing iron, only of a bluish-green colour instead of rose red. It is worth while to spend a night in a tropical forest, if only to see the fire-flies.

When we reached the ferry it was nearly ten o'clock, and the boat was moored on the other side of the river. But the boatmen heard our urgent summons, and half an hour later we were among our friends, who had returned before twilight, and had begun to fear that we were "bushed."

Day after day we scrambled through the scrub or strolled along the river. The wild luxuriance of the vegetation was amazing, and our botanist was embarrassed by riches; the entomologist was in the same happy position. We bird-lovers had fewer species to study, but were more than content. Regent-Birds [*Sericulus chrysocephalus*] were not numerous, but several pairs frequented a palm grove near the town-ship, which also became our favourite resort. We never tired of gazing at the palms, with their graceful fronds and clusters of coral-red fruit. And there were lilies, orchids, ferns, and a host of other plants, all beautiful. Along the river Forest Kingfishers [*Halcyon macleayi*] were fairly numerous, but a nest of the species was not discovered until we searched in the palm grove. The Kingfishers had drilled a hole in a Tree-ants' [*Termites*] clay nest, which was plastered against the trunk of a Cedar some fifteen feet above the ground. In the north, Kingfishers of several species, notably the White-tailed [*Tanysiptera sylvia*], nest in Termites' mounds.

Once only, on the Tweed, I obtained a glimpse of the Rifle-Bird [*Ptiloris paradisea*], the most southerly representative of the Birds of Paradise. I was walking along a forest pathway, paying more attention to butterflies than birds, when a rustling sound made me look up, just in time. A male Rifle-Bird flew right over me, and disappeared among the palms, twenty yards ahead. I ran down the track, but was not favoured with another view of the glorious bird. The adult male Rifle-Bird is thus described by Gould: "General plumage rich velvety black, glossed on the upper surface with brownish lilac; under surface similar to upper, but all the feathers of the abdomen and flanks broadly margined with rich olive green; feathers of the head and throat small, scale-like, and of a shining metallic blue-green; two centre tail-feathers rich shining metallic green, the remainder

deep black; bill and feet black." The colouration of the female's plumage is very different, the whole of the upper surface being grayish-brown; wings and tail margined with ferruginous; under surface deep buff, each feather bearing a black mark near the tip.



TERMITES' CLAY HOME ON CEDAR; NESTING PLACE
OF FOREST KINGFISHER.

A memorable day was spent on Stott's Island, a reserve some two miles below Tumbulgum. We sailed down the river in a fishing boat, and had to tack a dozen times owing to the direction of the wind. The boat was brought close to the island shore, where a break appeared in the jungle, and we leaped from the bows on to a tangle of roots, which rose, like the ribs

of a wrecked craft, from the mud. Following a natural avenue, we were soon in the heart of the forest. Palms, with bunches of red fruit depending from their crowns, Richmond River Pines [*Araucaria cunninghamii*], Cedars, and Moreton Bay Figs, formed the aristocracy of this little island's flora. The trees,



IN THE CANEFIELDS.

in many instances, were festooned with creepers, whose rope-like stems swung gently. One could easily have climbed these stout stems to the roof of the jungle. Branches were tufted with orchids and parasitical ferns; but there was a marked scarcity of flowers, except in glades, where *Convolvulus* bells, pink, blue and lilac, hung from the mantle of leaves, and in marshy hollows, where lilies grew thickly. Red-crowned Fruit Pigeons [*Ptilonopus swainsoni*] were feeding among the palms and fig trees. Pademelons [*Macropus thetidis*] went bounding through the scrub, startled by our noisy footsteps; in the glades, butter-

flies dallied with flowers, or rested on the sun-warmed earth. In one corner of the island, Paper-bark Tea Tree [*Melaleuca*] formed dense thickets, and huge logs cumbered the marshy ground. The logs appeared to be sound, but crumbled beneath our feet.

Roaming through this tropical forest, now in shadow and then in shine, one realised that it was at once a nursery, a battlefield, and a cemetery. Here the struggle for existence was being carried on with wild energy. Every species was fighting without allies, striving for roothold and a place in the sun. Of a thousand seeds, one-tenth may germinate, and of the seedlings only the fittest can survive.

Stott's Island was again visited by several members of our party, who had a minor adventure. A Carpet-Snake [*Python variegatus*], which measured over eleven feet in length, was surprised in a marshy spot. It was coiled beside a log, beneath which it endeavoured to glide when a naturalist grasped it by the tail. But two other pairs of hands gripped the reptile's body, and a tug-of-war soon ended in favour of the naturalists. Enclosed in a strong wooden box, the snake was despatched to Melbourne, where it was welcomed by a nature lover who delights in strange pets. After my return to Victoria, I handled the snake, and allowed it to coil around my waist. For a few minutes it remained quiet, then the coils began to tighten, and the snake's jaws closed on portion of my coat. I was glad to accept assistance in freeing myself from the reptile's embrace. Carpet snakes, of course, are non-venomous, and nobody who has lived in Python country for any length of time has the slightest fear of them.

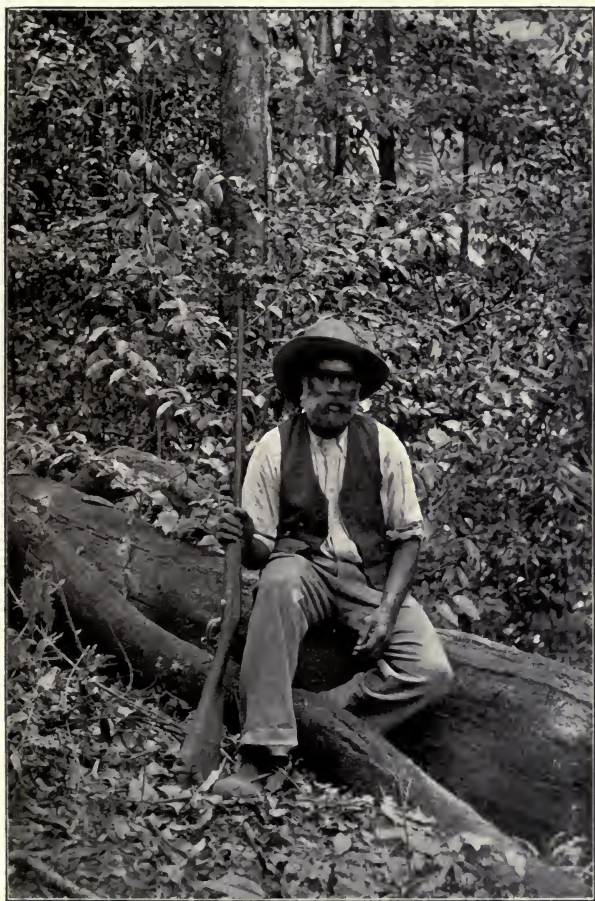
Occasionally, in the Tweed River scrubs, tree snakes (non-venomous) were seen gliding among the branches, like undulating tubes of delicately-tinted glass. The Common Green Tree Snake [*Dendrophus punctulatus*]*—*olive-green on the upper surface and

yellow beneath—was not easily detected, because it harmonised well with its surroundings. This species sometimes attains a length of seven feet, but none that we saw exceeded five feet.

Nightly we were serenaded by Slender Tree Frogs [*Hyla gracilentia*], attractive creatures, of a bright green or yellowish-green colour. Two fine specimens were found in a cavity in a rotting fence post, and one of the pair was subsequently domiciled in an Adelaide garden. When last I saw it, the frog was clinging to a pot-plant in a greenhouse, apparently as happy as ever it was in the fence post on the Tweed. There were other animal musicians whose evening concerts became rather wearisome. The Cicadas in the Lantana bushes by the riverside began to "fiddle" at about 6 p.m. each day, a habit which earned them the name of "Six-o'clock Cicadas." Often I waited to hear them, and the following extract from my notebook was written on such an occasion:—"Fruit Bats are flying around the old Moreton Bay Fig, beneath which I am seated, and Cicadas among the Lantana bushes have begun to stridulate. The river is placid, a mirror for crimson clouds and purple hills."

Butterflies were a constant delight, and in the course of our rambles along the river banks we identified a fair number of species. A specimen of the curious Glass-wing Butterfly [*Acræa andromacha*], which is the only representative of the sub-family *Acræinæ* in Australia, was captured. The fore wings are hyaline, with brown markings, while the hind wings, creamy-white with brown margins, are opaque. These insects are believed to be distasteful to birds, and presumably other animals; but when dining in a Brisbane restaurant I rescued a Glass-wing Butterfly from a cat, which had captured it in the yard.

A trip to Mount Warning was, perhaps, our most memorable excursion from Tumbulgam. An easy-going aborigine was engaged as guide, as he promised



A NATIVE GUIDE.

to show us mounds of the Brush-Turkey [*Catheturus lathamii*]. We drove to the foot of the mountain, and, with the native in the lead, began the ascent. Our guide, who was accompanied by a mongrel dog and carried an antiquated gun, was inclined to dawdle, but he soon discovered a Brush-Turkey's nesting mound, close to the track. Composed of earth and vegetable matter, it was about three feet in height, with a circumference at the base of thirty feet. The mound was in ruins, and, of course, we were not satisfied with it; but the guide considered that he had fulfilled his promise, and did not worry about finding another mound. He displayed energy, however, when we approached a group of trees, among whose lofty branches Topknot Pigeons [*Lopholaimus antarcticus*] were feeding. Two shots were fired, and a brace of plump birds was picked up by the native.

For hours we wandered on the mountain slopes, amid enchanting forest scenery. But the atmosphere was oppressive, like that in a hot house, and when we reached the open country again it was good to breathe cool air.

In every way, our sojourn in the Tweed River district was successful, though we had not sufficient time to visit all the interesting spots. Perchance some of the scrub which we explored has been destroyed; but whatever axe and fire have done, they cannot dim bright memories of days among the palms.

* * * * *

Brisbane, the fair capital of Queensland, is a pleasant place for naturalists. When in the city a few years ago, I frequently visited the Botanic Gardens to observe Fig-Birds [*Sphecotheres maxillaris*] and Friar-Birds [*Tropidorhynchus corniculatus*], which were numerous. But a more interesting locality is the Enoggera water reserve, about eight miles from the city, where Comb-crested Jacanas [*Parra galinacea*] may be studied at close range.

When I visited Enoggera the lake was aglow with water lily blooms, both blue and white. In some places lilies grew so thickly that it was difficult to force a passage for the boat, and at every stroke the oars received a burden of leaves and stems. But speed was not required; one wished to linger where thousands of blossoms nodded above still water like chalices abrim with sunshine. Several Jacanas were observed, walking over the broad, flat lily leaves. The feet of the Lotus-Bird (a prettier name than Jacana) are adapted for walking over floating leaves; the toes and claws are of great length, and the latter are turned upward. An hour's search among the lilies was rewarded by the discovery of two nests, composed of aquatic plants, each containing four eggs—the average clutch. The eggs of the Jacana are beautiful, and collectors prize them. Pyriform in shape, the shell is of fine texture, and highly glossed; the ground colour is rich, yellowish olive, freely marked with lines of dark brown and black, which interlaces, forming blotches.

CHAPTER X.

CORAL ISLES

FORTUNE favoured the Ornithologists' Union when it organised an expedition to the Capricorn Group, at the southern extremity of the Great Barrier Reef. The use of the Federal Fisheries Investigation vessel *Endeavour*, as a transport, was granted, and the captain and crew rendered assistance which smoothed more than one rough place. The steamer conveyed us to and from the mainland and the isles; we enjoyed short cruises aboard her, and the skipper sent gifts of fish to our camps. The farewell cheers that were given when we returned to Gladstone were not formal, but prompted by gratitude to our sailor friends.

The Capricorn Archipelago was visited by Professor Jukes in 1843, in H.M.S. *Fly*, and, so far as known, no other naturalists worked among the isles until 1904, when Mr. C. Hedley, F.L.S., of Sydney, and several of his friends, spent a week on Mast Head. In his paper on the mollusca of the reef,* Mr. Hedley states that, strictly speaking, the group is not a part of the Great Barrier, which ends in Swain Reefs, a coral maze, north of the Capricorns, between which and the islands lies Curtis Channel, which is broad and deep. But, he adds, for zoological purposes, these pseud-atolls may conveniently be regarded as a continuation of the Great Barrier. We met Mr. Hedley in Sydney, and from him obtained information which proved of great service. He warned us not to be far out on the

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reef at the turn of the tide, for the sea raced over the coral at a rate of two knots an hour. The range of the tides is fourteen to fifteen feet. The Tropic of Capricorn bisects the Archipelago.

We left Gladstone Jetty early on the morning of October 8th, 1910, and enjoyed a calm passage to the Capricorns. The Pacific, dimpling in the tropic sunlight, seemed to welcome us, and the sky was serene



AN ISLAND BEACH.

as the sea. From the steamer's deck we observed birds and marine animals, becoming so engrossed that the hours passed unheeded. There was some excitement when a Flying-Fish [*Exocetus volitans*] leaped from the sea near the *Endeavour*, and skimmed above the surface for a hundred yards. The question whether the Flying-Fish actually beats the air with its wing-like pectoral fins, which are lengthened and of great size, or uses them merely as parachutes, has been much debated. During the voyage to the Capricorns hundreds of these queer fishes were seen

darting through the air, and several observers declared that the pectoral fins were vibrated, but not continuously, the motion being most apparent when the fishes passed the centre of the arc of their "flight."

Dolphins [*Dolphinus delphis*], popularly called Porpoises, gambolled around the steamer's bows; occasionally a huge shark was seen; and the transparent water was thronged with beautiful Medusæ. A sharp look-out was kept for Portuguese Men-of-War [*Physalia*], but none was observed. On the Brisbane River, a few days previously, in a launch, we passed through a fleet of these creatures, and found thousands, with deflated air bladders, stranded on a sand bank.

Just before noon North-West Island, the largest of the Capricorns, appeared in sight—a long gray shadow resting on the sea. We had decided to divide into two parties, one of which was landed on North-West Island. It was not safe for the steamer to come close to the coral reef, and the anchor was dropped in about nine fathoms, two miles from the beach. It was flood tide, and the boats, though heavy laden, rode easily over the reef. The unruffled sea, of a wonderful blue tint, won our admiration, but in the lagoon its beauty was rivalled by that of the corals, clearly visible on the white sand below. Pent in "walls of glass," the submarine garden glowed with many colours. We had read many descriptions of coral reefs, and were not disappointed by the reality. Few objects in Nature are more enchanting than living corals; the "skeletons" stored in museums are interesting, but can never satisfy one who has drifted in a boat over a reef in the tropic sea.

My lot was cast with the second party, and when the boats returned to the steamer I was aboard the mate's craft. With a farewell shriek from her siren, the *Endeavour* headed for Mast Head, an islet about one hundred acres in extent, lying seventeen miles to



CORALS AND SHELLS.

westward. It was 3 p.m. when she arrived off the reef, and the tide was ebbing fast. We disembarked from the boats on the outer edge of the reef. Heavy boxes, water cans and other baggage had to be carried across the causeway of dead coral, and after an hour of this work, some of us felt like the penitent who forgot to boil the peas that he was ordered to place in his shoes. The men with stout sea boots suffered only fatigue, but others wore rubber-shoes, and felt jagged coral through the soles, while in the shallow lagoon coral scratched and bruised their legs. The seamen worked with a will—but for their help we would have been in a worse plight—and it was dark when they bade us good-bye. All the baggage was piled on the island beach. But our troubles had not ended; before the tents could be pitched, a storm burst. Rain fell in torrents, and, drenched to the skin, we erected the large tent, which became both store-house and dwelling. Our blankets were damp, but amid bulging sacks, boxes and portmanteaux we made ourselves fairly comfortable, and smoked and yarned till after midnight. The rain continued, and its tattoo on the canvas finally lulled us to sleep.

The dawn was bright and fragrant, and it was with rising spirits that we emerged from a dripping tent into sunlight. There was work for all hands during the forenoon, and when the cook beat his dinner gong (a biscuit tin) we felt that a meal had been earned. The tents were pitched in a grove of Casuarinas on one of the raised beaches; a fireplace was built of coral-sand-rock and "nigger-heads"; and when the Union Jack fluttered from a sapling, the camp was fully established. Our stock of flour, sugar, tea, tinned meats, and so forth was sufficient for a month; but the water supply was limited, and as there was not even a pool on Mast Head, we had to be careful. We washed in the sea, a handful of fine coral sand being used for scrubbing. Salt water and

soap do not agree, and, lacking lather, it was difficult to maintain a civilised standard of bodily cleanliness. Shaving became almost a lost art among us, and in a week the young men, who had landed on Mast Head with smooth cheeks and chins, were bearded.

When the *Endeavour's* skipper sent water ashore to replenish our cans, we enjoyed liberal draughts, but in a day or two returned to the old order. Only once, however, did we actually feel the need of water, when the cans were nearly all empty, and there was no sign of the steamer. Half in jest and half in earnest, we discussed the possibility of making a condenser. Next morning the *Endeavour* was lying off the reef, and we sent three cheers ringing across the sea. They were not heard, of course, but doubtless, through his glass the captain discerned us grouped upon the beach. The lack of permanent fresh water on the island was beneficial in one respect. We were not worried by mosquitoes; indeed, there were few pests of any kind, unless the small crabs, which burrowed in the sand beneath our blankets, could be classed as such.

At leisure after camp-making on that first long day at Mast Head, we began to explore the islet. We walked around it on the sunlit beach, and crossed in different directions through the jungle. A series of storm beaches, fringed with She-oaks, and a stratum of coral-sand-rock, were of special interest. The She-oaks formed a girdle, broken here and there, and behind them grew bushes of *Sophora*, *Turenelfortia*, Pandanus Palms, and smaller plants, while the centre of the islet was occupied chiefly by *Pisonia* trees. In the forest were glades and avenues, where the sunlight gleamed on a carpet of dead leaves; white-flowered creepers [*Ipomæa*] festooned the tree trunks. Some of the *Pisonias* rose to a height of nearly sixty feet, and their spreading branches, strung with broad leaves, afforded grateful shade. A species of *Ficus*,

with small red fruit, was comparatively rare, but Pandanus Palms flourished in the forest, as well as along the beach. The rod-like, aerial roots of some of the palms formed a high palisade around the trunks.

On the sand spits Bridled Terns [*Onychoprion anæsthesia*], Crested-Terns [*Sterna cristata*], Lesser-Crested Terns [*S. media*], and Black-naped Terns [*S. melanauchen*] were congregated, but they rose in clouds when disturbed by the unaccustomed sight of men, and, with querulous cries, joined the birds scattered over the reef. Rounding a corner, we surprised five Reef-Herons [*Demigretta sacra*], perched on limbs of a dead tree, in the characteristic hunch-backed attitude, looking at the sea—or perhaps they were watching some Silver Gulls that were feeding on the decomposed flesh of a stranded shark. Many other birds were noted, and we returned to camp satisfied that Mast Head was a naturalists' Eden.

Our second night on the islet was passed in comfort, and thenceforward we had no reason to complain of harsh treatment from the elements. The violent storm which marked our arrival was followed by halcyon weather. For ten days we studied the bird life, and the wonderful fauna of the reef, under most favourable conditions. Cook did all the dreary camp work, and we lost none of the precious hours that could be devoted to natural history. Quiet rambles along the beach and in the forest, with field glass and camera, collecting on the reef, and fish-spearing in the lagoon, were daily occupations. A small, flat-bottomed boat was used for cruises in the lagoon, but it was too frail a craft to navigate in the sea beyond the coral barrier. Fish were speared for food, though the marine zoologist rescued some specimens, which he considered it a scandal to place in the frying-pan, and preserved them in spirit. Many of the fishes captured were small, and all were beautiful, blue,



IN THE PISONIA FOREST.

scarlet, silver, gold, orange-brown, and green being among the colours displayed by different species. Tiny fishes, which haunted the branches of living corals, harmonised with their surroundings, and were detected only when frightened away from their shelter. It was the same with crustaceans and other animals.

The reef at low tide was exposed for some four miles from east to west, and less than half that distance from north to south. It proved to be a rich collecting place. Overturning "nigger-heads," we found numbers of molluscs, sponges, echinoderms, and so forth. Cowries were so abundant that one could gather a bucketful in an hour. Some were large, but a small species, with a delicate violet-coloured shell, was most attractive. As a rule, the shell was concealed by a black mantle. It was necessary to shatter clumps of coral in order to obtain some of the cowries, which were buried among the branches. *Tridacna* shells of large size were numerous, the finest specimens being in the lagoon. A few "nigger-heads" were collected on the crest of the reef and carried ashore, but they were too bulky to pack in specimen cases, and were abandoned when we left the islet. These curious objects are composed of an *Astrean* species of coral; they are roughly globular, and of a dark colour. At Mast Head many of the "nigger-heads" were tufted with purple-shelled rock oysters.

We waded in the lagoon at low tide, when the dead tops of coral masses showed above the surface. The "floor" of the lagoon was nearly covered with living coral. Sandy channels intersected the submerged "tableland"—composed of clumps of *Madrepora*, *Turbinaria*, and other corals—which sometimes crumbled as we walked along it, with the result that our legs were scratched by the jagged fragments. The colours of the corals included purple, violet, yellow, brown, green and crimson, and we never tired

of gazing at the "flowers" in this submarine garden. A series of specimens of the Mushroom Coral [*Fungia*], illustrating the life history, was collected. This solitary coral increases by budding, and one of our specimens was a recently detached bud, which resembled a tiny toadstool.



HOLOTHURIANS IN CORAL POOL.

Holothurians, the beche-de-mer of commerce, were abundant in the lagoon, where they crawled over the sandy spots or lay huddled in the shelter of coral blocks. A large black species, slimy and repulsive, was most numerous. When alarmed, these sea-slugs contracted their bodies, and ejected a cloud of sticky, white filaments, which waved in the water like cilia. Another species, about six inches in length, was shaped like a cucumber, and the pinky-red body was dotted with blunted spikes. Sea Hares

[*Aplysia*] also inhabited the lagoon. When disturbed the creatures discharged from glands in the mantle a purplish fluid that discoloured the water for yards around. Among the coral black-and-white eels were seen occasionally. Sea snakes kept out of our way, and none of us was particularly anxious to encounter venomous reptiles.



TURTLE TRACKS ON THE BEACH.

We were able to study the Green Turtle [*Chelone mydas*] at close range; for the breeding season had begun, and thousands of the huge creatures had come to the Capricorns. It was nothing unusual to see twenty or thirty basking on the beach, and as many more swimming in the lagoon. When a sleeping turtle was aroused, it hastened to the sea, spurting sand in all directions with its powerful, paddle-shaped limbs. A full-grown Turtle can drag two men, or carry them on its carapace. Frequently we enjoyed turtle-back rides. It was easy enough to secure a

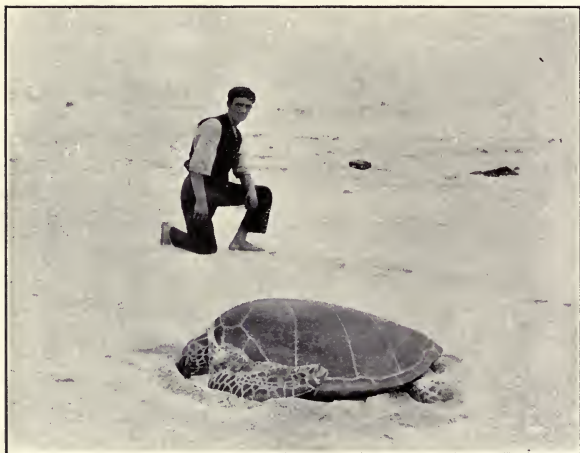
steed, but impossible to control it. Creeping up to a basking Turtle, one leaped on to its carapace, secured a firm hold, and awaited events. As a rule the ride was short and exciting. Aroused, the Turtle scrambled over the beach to the sea, swam for a few yards, and dived, when the rider, if wise, relinquished his seat immediately.



TURTLES COMING ASHORE.

The Turtles' nests were situated along the edge of the scrub, among sand hillocks. Probably there was a large number, but only a few fresh nests were discovered; hollows in the coral sand marked the sites of old ones. Turtle tracks from the lagoon to the scrub scarred the beach all around the islet. The animals come from the sea at night to make their nests, excavating deep holes with their hind flippers. When the eggs have been deposited, the hollows are

filled in, and the Turtles return to the sea. A Loggerhead Turtle [*Thalassochelys caretta*] was seen swimming in the lagoon at Mast Head, and a dead specimen was found on the beach. The Loggerhead possesses a more powerful beak than the Green Turtle, and its carapace is beautifully marked. Many of the Turtles



TURTLE, SLEEPING.

examined were "old stagers," whose carapaces were dotted with barnacles and limpets. When our supply of fresh meat failed a Turtle was killed; judging by the toughness of its grilled flesh, the creature was a centenarian.

During several hours of the day the heat was so great that one could not walk bare-footed on the beach without discomfort; for the sand was almost hot enough to blister the flesh. But the nights were cool. Moonlight silvered the sea, and the white beach

was barred by the shadows of flying birds. Often I walked alone from the camp to Frigate-Bird Point, where, seated on a sand hummock, I endeavoured to identify birds by their notes. The night was always loud with bird voices, which drowned the musical ripple of the sea, and the croon of She-oak



NEST AND EGG OF WHITE-CAPPED NODDY.

boughs. Thousands of shadowy forms passed overhead, to and from the sea and the scrub, and thousands patrolled the beach. The plaintive calls of the Black Oyster-Catcher [*Hæmatopus fuliginosus*] and the clicking croak of the White-capped Noddy [*Anous leucocapillus*], were unmistakable; many of the other notes were puzzling. A small flock of Lesser Frigate-Birds [*Tachypetes (Fregata) ariel*] at dusk each day came to the Point to roost in the Casuarinas. We never failed to watch for the birds, which late in

the afternoon appeared suddenly, a cluster of black specks at first, as if created by magic of the burnished sky. When close to the islet the great birds, high in air, performed graceful manœuvres on apparently motionless wings. They soared for an hour or longer, before sweeping down to the She-oaks.



WHITE-CAPPED NODDY ON NEST.

White-capped Noddies, whose nests were built on branches of the *Pisonia* trees, began to lay a few days before our departure from Mast Head. The nests, composed of layers of *Pisonia* leaves, pressed together when damp, were flimsy structures, measuring from six to nine inches across the top. One egg formed the clutch. The variation in markings was so great that no two eggs of the hundreds examined were exactly alike; the colours of spots and blotches ranged from delicate lilac to rich carmine, on a

creamy white or buff ground. Nests were so numerous that one could not walk a dozen yards in the forest without seeing scores. It was roughly estimated that between 30,000 and 40,000 Noddies were nesting on the islet. All through the night we heard the birds calling, and at dawn saw vast flocks leave the trees and fly out to sea in quest of food; towards evening we watched them return. In all my wanderings I have seen nothing more wonderful than these flights of wild sea birds.

Brooding Noddies were easily captured; they seemed to have little fear of man. One brave little bird, whose egg I wished to see, pecked my hand when it touched the nest. A bird-lover came to grief when endeavouring to photograph a Tern on its nest. He climbed the tall *Pisonia*, and ventured too far out on the horizontal limb, which snapped, and down came naturalist, camera and all. Fortunately, no harm was done, except to the tree. *Pisonia* boughs, apparently tough, are soft and sappy, and no great strain is required to break them.

The sandy soil in the *Pisonia* forest was honey-combed with burrows of the Wedge-tailed Petrel [*Puffinus sphenurus*]. The birds came in from the sea at night to renovate the old burrows, preparatory to egg-laying, and many blundered into our tents. One night we were aroused by a cry from the cook. "I've got one," he shouted, and, hurrying to his quarters, we found a Wedge-tailed Petrel had got *him*. The bird had flown into the tent, and when cook, who was in scanty attire, tried to catch it, fixed its beak in his bare leg. The Wedge-tailed Petrel is more slender than the Short-tailed Petrel or Mutton-Bird [*P. brevicaudus*], and has light-coloured feet.

Silver Gulls [*Larus novæ-hollandiæ*] were nesting along the edge of the scrub, close to our tents. One nest was prettily situated beneath a She-oak sapling, whose drooping branches formed a natural umbrella, screening the eggs from the sun. The

Gulls, though nesting in company, were not friends, and the owners of one nest, we suspected, destroyed the eggs of their nearest neighbours. Silver Gulls are charming birds, but one cannot say much for their character. Several young birds in the down were seen on the beach; when an attempt was made to capture one it darted into the sea, and swam bravely for a few yards.



NEST AND EGGS OF REEF HERON.

In dense bushes near the beach, and amid the harsh frondage of Pandanus Palms, Reef-Herons had built their stick nests. Some contained either two or three bluish-white eggs, while fledglings, quaint little creatures, whose heads and beaks appeared too big for their feeble bodies, occupied others. The nestlings were timid, and when anybody approached scrambled from the nest to hide in the undergrowth. Both the blue and the white coloured Reef-Herons

were nesting on the islet, and but for evidence to the contrary, might have been mistaken for two distinct species. The white birds were conspicuous when they flew from the She-oaks out to the brown reef, where they resembled flakes of foam among the coral.

A pair of White-bellied Sea Eagles [*Haliaeetus leucogaster*] had an eyrie in a Pisonia tree at the eastern end of the islet. An eaglet gazed fiercely at the naturalist who climbed to the nest, and menaced him with beak and claws. The ground beneath the nest was strewn with the skeletons of sea snakes and fishes; bird remains were lacking. We could not ascertain whether the Sea Eagles preyed on Terns, though their actions on several occasions were suspicious, and the Noddies scattered when they swooped over the trees.

Several Pied Bell-Magpies [*Strepera graculina*] were constantly in the vicinity of our camp, and were welcome visitors. Two Sacred Kingfishers [*Halcyon sanctus*] were also friendly, and deigned to pick up scraps thrown to them by the cook. Their nest was near by, in a hollow limb of a Pisonia tree. These bright birds had a favourite perch, the stake to which our boat was moored, and one or other could be seen upon it at intervals every day. While the storm was raging on the night of our arrival two Kingfishers, weary and bedraggled, flew on board the steamer, and were captured. They seemed to be dazed, and when brought ashore made no effort to fly for some time.

A nest of the Barred-shouldered Dove [*Geopelia humeralis*] was found in a low bush, not far from the Sea Eagles' tree. It contained two white eggs, from which the female bird was flushed. I spent the best part of a morning at the nest, endeavouring to photograph the bird brooding; but she slipped from the nest when the camera was erected about six feet

away, and did not return until it was removed. Broad-billed Bronze Cuckoos [*Chalcococcyx lucidus*] were observed flying about the Turnefortia bushes, their metallic green plumage shining in the sun. Altogether forty species of birds were identified among the Capricorns, including a number of waders. A Barred-rumped Godwit [*Limosa uropygialis*], captured on the beach one evening, was in poor condition; it had evidently just reached Mast Head after a long migratory flight. Eastern Siberia is the breeding place of the species.

When the *Endeavour* appeared off Mast Head one afternoon, we went aboard, and a short cruise was planned for the following day. Starting soon after sunrise, we were able to visit two islands, and spend a few hours on each, rambling along the beaches and through the scrub. Erskine Island, the smallest of the Capricorn Group, lying only a few miles from Mast Head, was quickly explored. The sunlit beach was strewn with shells. Many specimens of the Bailer Shell [*Melo diadema*] were collected, but few were perfect. The nest of a pair of White-bellied Sea Eagles, built on the summit of a large Sophora bush, became the centre of interest, because it was occupied by a fledgling. Before we landed one of the parent birds was at the eyrie, but it flew to the other side of the islet, leaving the eaglet to take care of itself. Climbing to the nest, a huge pile of sticks that would have filled a dray, I found the eaglet ready for battle. And when I retired to secure a photograph from the ground, it clambered to the rim of the nest, where it perched in an attitude of defiance.

On Heron Island, which resembled Mast Head in most respects, we did not observe Sea Eagles, but felt sure that one pair at least was in possession. Black Oyster-Catchers were busy on the beach, and a nest containing a chick and a chipped egg was discovered on the sand under a bush. Reef-Herons were more

numerous than at Mast Head, and were nesting among the larger bushes and Pandanus Palms. Hundreds of Turtles were basking on the southern beach, and few of them stirred until we were close enough to touch their huge bodies with a stick. Heron Island possessed many charms; but we had come to regard



REEF HERON NESTLING.

Mast Head as "our island," and were glad to be back again after our pleasant cruise.

It was my good fortune to be chosen as historian of the expedition, and I spent a few days with the party on North-West Island. Their camp was different from ours at Mast Head, because they made use of some buildings on the island, where turtle-soup canning operations had been carried on. A huge pile of bleached bones near the silent "factory" showed

that the flesh of many Turtles had been reduced to soup. Nobody connected with the industry visited the island during the naturalists' sojourn there.

Birds on North-West Island had enemies in their midst, domestic cats gone wild. One of the fierce animals was shot; but others were seen, and we feared that the tribe might increase and become a serious menace to bird-life. Walking through the scrub one morning, I was astonished by the sight of a neat picket fence, enclosing a small area, and with a wooden cross at one end. It was the grave of a child, a lonely resting place within sound of the sea. The jungle was building green walls about it, and the cross was shaded by a drooping bough. The spot seemed familiar, and suddenly I remembered a solitary grave on a hillside in Queensland. Continuing my ramble, I met two other naturalists, and together we crossed the island through the *Pisonia* forest. Emerging from the scrub on to a sunlit beach, we disturbed a flock of Terns and spoiled the post prandial nap of a Turtle. North-West Island seemed to be a stronghold of Turtles, for hundreds were counted during the walk back to camp.

On board the *Endeavour* a trip was made to North Reef, which is marked by a lighthouse. The keepers and their kin, though taken by surprise, gave us a warm welcome. North Reef Islet is only a ridge of sand, with bushes growing on the summit, and "Roly-poly" grass and evergreen creepers spread over the flat area. It was low tide when we arrived, and the reef was exposed. Among the pools Reef-Herons were feeding, and they allowed us to approach close to them. The light-keepers explained that they liked to have the birds about, and never disturbed them.

From North Reef the steamer took us to Tryon Island, where an exciting incident occurred. The tide was at half-flood when the first boat left the *Endeavour* to take four naturalists ashore. When it was about three-quarters of a mile from the beach the boat



SACRED KINGFISHERS

struck a reef, and its occupants, jumping out, began to wade. The water inside the reef, waist deep at first, as the tide rushed in rose to the waders' arm-pits, and in the swirl it was hard for them to keep on their feet. Several big sharks were seen, and Green Turtles were swimming in all directions. From the steamer's deck I watched my friends battling with the sea, and was thankful when they reached the beach. The second boat was taken over the reef with ease, for the water was deeper. On Tryon Island Reef-Herons and other birds were nesting, but we had time for only hurried observations.

* * * * *

When the day of departure came we were sorry to bid the islands farewell, and during the voyage to Gladstone could talk only of their beauty and wonderful fauna. The expedition had been successful, for we gleaned diligently, but another month could have been profitably spent among the Capricorns. Naturalists who visit the group in the future should reap a rich harvest.

FINIS.



BLACK SWANS.

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